MAY 12, 1958

STEEL
The Metalworking Weekly

A PENTON PUBLICATION

WILL STEEL PRICES RISE?

—Page 45

✔ Stainless Gets New Look . . . Page 88

✔ Steel Warehouse: '70 Style . . . Page 119

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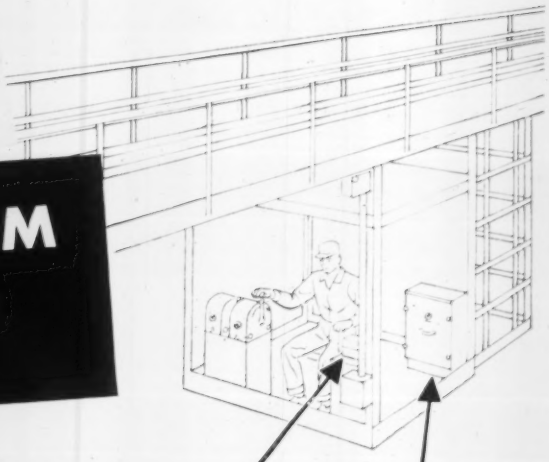
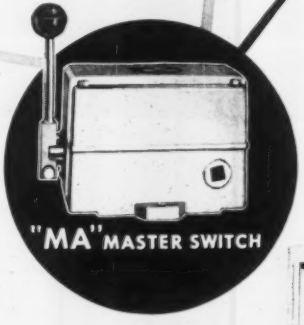
Better than Manual Control for So Many Reasons!

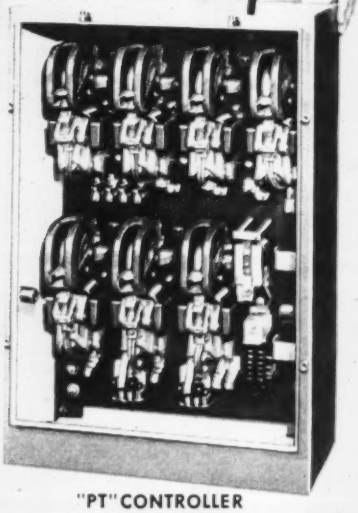
NEW LOW COST EC&M MAGNETIC CONTROL FOR DC CRANES



Now, on any DC application up to 55 HP, 230 volts, you can have the advantage of full *magnetic* control where manual control formerly was specified purely on the basis of price. At comparable cost, EC&M's new *Type PT* Magnetic Control gives you—



"MA" MASTER SWITCH



"PT" CONTROLLER
with front cover removed

Compactness—fits easily in crane cabs, on crane walkways and wherever space is limited.

3-Point Speed Control in either direction.

Reduced Motor Wear through automatic acceleration. Acceleration relays adjustable from 0.2 second up to 3 minutes per step.

Space Saving—front connection permits mounting against wall.

Maximum Safety—completely enclosed.

Fewer Spares—no manual control parts to stock.

Choice of Mounting Arrangements—MA Master Switch can be ganged with other masters or self-contained on top of the PT Controller.

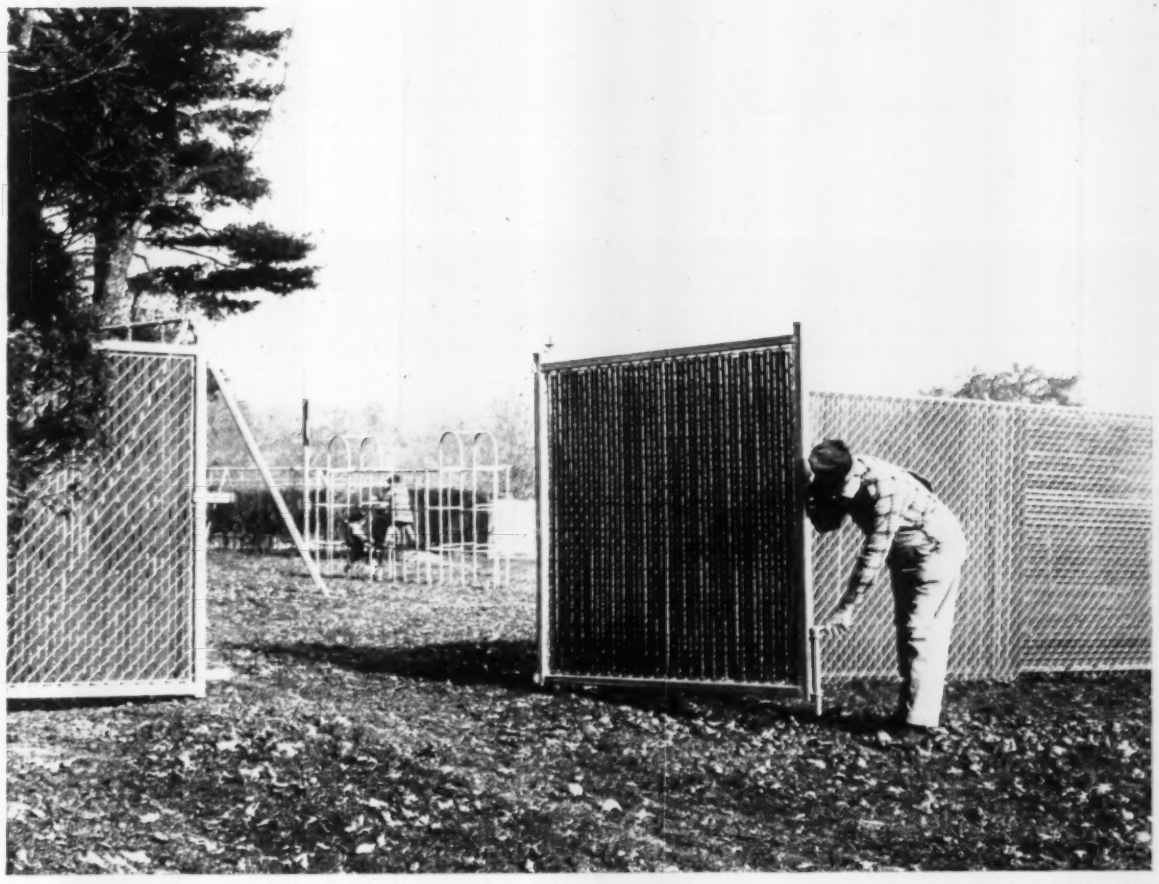
Standardized Overload Protection is available. Separate panel for protection of 1 to 4 motors is smaller, simpler than protective panels used with manual controllers.

Write FOR BULLETIN 6131

Available for Hoist, Bridge and Trolley motions on cab or floor-operated cranes

THE ELECTRIC CONTROLLER & MFG. CO.
A DIVISION OF THE SQUARE D COMPANY
CLEVELAND 28 • OHIO

1236



NO PEEKING

Through This Chain-Link Fence!

Usually chain-link fence is used to provide protection. Yet here's an installation where it affords a measure of privacy too.

The secret lies in the thin slats which are laced through the links of the fence. The slats may run vertically, horizontally or diagonally to achieve a variety of design effects. This interesting use of chain-link fence is a development of the Anchor Fence Division of Anchor Post Products, Inc., Baltimore, Md., to whom Bethlehem has been supplying steel wire for many years.

Bethlehem makes just about every kind of steel wire. And a big part of our job is working closely with wire users, developing the best type of wire for each different application.

Whether you need one of our special-purpose wires or one of the more ordinary types, you can count on our modern wire mills to do the kind of job that will keep your steel wire problems to a minimum. We'll be glad to have a Bethlehem man give you prices, delivery, and other details. Just phone our nearest sales office.

Young pupils at the new Rolling Road School, Catonsville, Md., enjoy their play periods behind this chain-link fence made and erected by the Anchor Fence Division of Anchor Post Products, Inc., Baltimore, Md.

BETHLEHEM STEEL COMPANY
BETHLEHEM, PA.

On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation. Export Distributors: Bethlehem Steel Export Corporation

BETHLEHEM STEEL

BETHLEHEM STEEL

This man is tabling downtime indefinitely with SKF's new steel pillow blocks

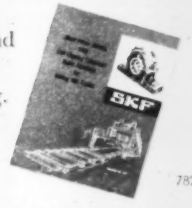
He's cutting bearing maintenance to a minimum yet drastically reducing the chances of table downtime! For he's equipping the mill tables with SKF's new SMT Steel Pillow Blocks with self-aligning spherical roller bearings.

The split construction design of these new pillow blocks makes it possible for rolls to be removed without disturbing base alignment. The non-rubbing, labyrinth-type seal effectively keeps out scale and water and is not affected by high temperatures.

The Type "C" Spherical Roller Bearing gives him the highest capacity available in any self-aligning roller bearing. This high capacity is available despite angular misalignment caused by heat warpage of the table structure or other factors promoting table misalignment.

He'll save with direct, center lubrication, too . . . because a lubricating groove is provided around the circumference of the outer ring of SKF sphericals with equally spaced holes drilled in the ring connecting the groove to the center of the bearing. Grease moves around the groove and through the holes which channel it directly to the center of the bearing.

Why not make the change-over to SKF Steel Pillow Blocks yourself? Write for Catalog #447.



7821

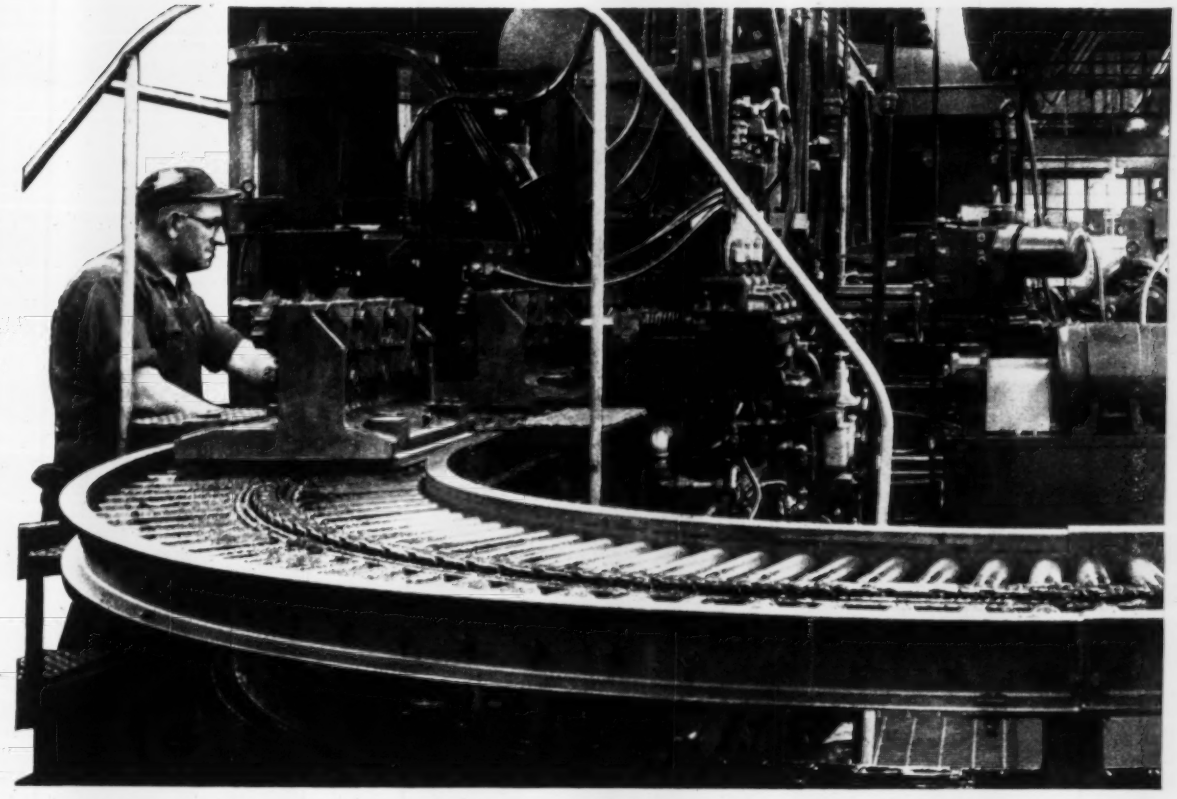
Spherical, Cylindrical, Ball, and "Tyson" Tapered Roller Bearings

EVERY TYPE—EVERY USE

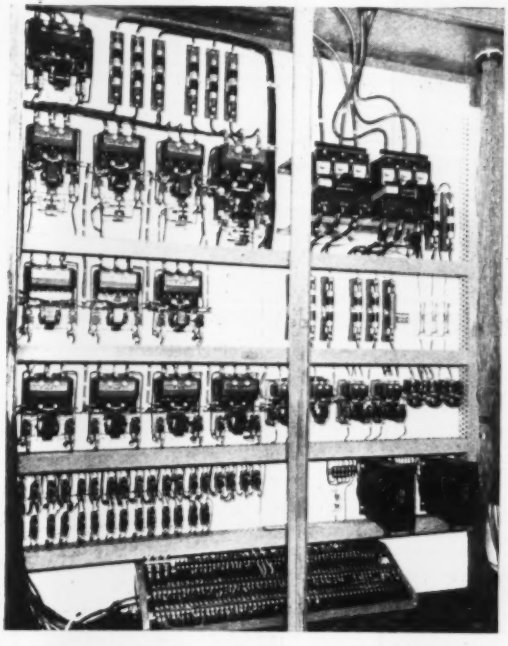
SKF®

SKF INDUSTRIES, INC., PHILADELPHIA 32, PA.

®REG. U. S. PAT. OFF.



Eaton Manufacturing Company automation line depends on CLARK Type "CY" Starters to minimize costly downtime...



In complex automatic machines used today, dependable electrical controls are essential to continuous operation.

Typical of such machines is this automation line at the Pump Division of Eaton Manufacturing Company in Marshall, Michigan. Designed and built by the Avey Division of The Motch & Merryweather Machinery Co., it performs 132 operations on automatic power steering pump bodies. The control system contains 15 Clark type "CY" starters, in sizes from 1 to 3, designed for dependable, heavy-duty, long-life operation.

Every panel component is a vital link in the production process. Because Clark Type "CY" starters employ an exclusive principle of arc-quenching, using double-break contacts and strong, multi-turn magnetic blowouts, contact life is greatly increased. Throughout industry, thousands of Clark starters are giving on-the-job proof that this means less maintenance, reduced downtime, and increased production and profit.

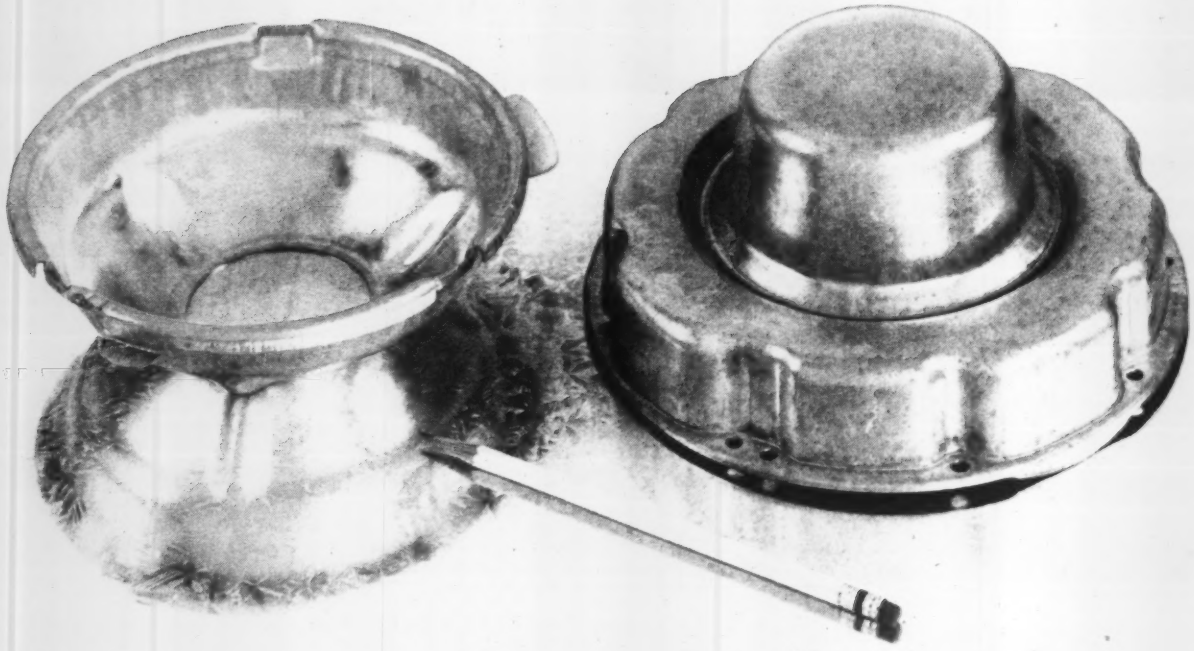
To assure complete dependability for the control of this machine, Clark space-saving Type "PM" relays are used for the hundreds of complex circuit switching functions required.

For information on dependable Clark Control, contact your nearest Clark Distributor or write us direct.

The **CLARK CONTROLLER** *Co.*

Everything Under Control • 1146 East 152nd Street • Cleveland 10, Ohio

IN CANADA: CANADIAN CONTROLLERS, LIMITED • MAIN OFFICES AND PLANT, TORONTO



WITH WEIRKOTE YOU CAN SAY GOODBYE TO PLATING!

The problem: Regardless of the current used in plating, it was economically impractical to throw the plating solution beyond ¾ of the depth of the parts shown above. The parts were thus only partially plated making them extremely vulnerable to corrosion.

The answer: The manufacturer of these parts switched to Weirkote zinc-coated steel! Weirkote can eliminate plating, provide excellent corrosion resistance before, during and after production and, as you can well understand, lower costs, too.

You can work Weirkote to the very limits of the steel itself—no flaking, no peeling, no dipping after fabrication. Weirkote's continuous process integrates the zinc and the steel to wage a winning war against corrosion during the life expectancy of your products.

Can you use Weirkote's many advantages in your product and production? Write for free brochure that will spell out the answers to many of your questions. Weirton Steel Company, Dept. B-18, Weirton, West Virginia.

WEIRTON STEEL COMPANY

WEIRTON STEEL COMPANY

WEIRTON, WEST VIRGINIA

a division of

NATIONAL STEEL CORPORATION

This Week in STEEL The Metalworking Weekly

May 12, 1958
Vol. 142 No. 19

EDITORIAL 43

Our thinking on depreciation has stood still while our technology has been galloping ahead.

SPECIAL FEATURE 45

WILL STEEL PRICES RISE?

Steelworkers will get an automatic pay hike July 1. Steelmakers will find it hard to pass along the added costs, harder still to absorb them.

WINDOWS OF WASHINGTON 52

Texas senator would like to talk up a Democrat sponsored tax cut bill, but it wouldn't be proper.

MIRRORS OF MOTORDOM 59

Standardization will hit the auto industry in a big way for the first time when '59 models come out.

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The long-awaited spring upturn may be starting, but it will fall far short of past performances.

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STEEL, the metalworking weekly, is selectively distributed without charge to qualified management personnel with administrative, production, engineering, or purchasing functions in U. S. metalworking plants employing 20 or more. Those unable to qualify, or those wishing home delivered copies, may purchase copies at these rates: U. S. and possessions and Canada, $10 a year; all other countries, $20 a year; single copies, 50 cents. Metalworking Yearbook issue, $2. Published every Monday and copyright 1958 by Penton Publishing Co., Penton Bldg., Cleveland 13, Ohio. Accepted as controlled circulation publication at Cleveland, Ohio.

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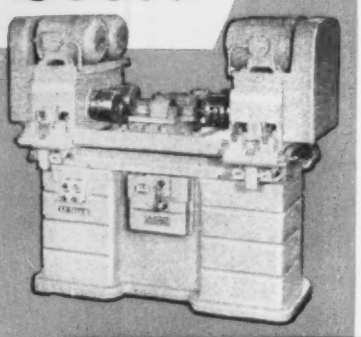
MAXIMUM PRODUCTION AT LOW COST!



This Ex-Cell-O Style 1212-B Double-End Boring Machine practically *doubles production* when loading time of parts approximates the time of machining.

● **STYLE 772 DOUBLE-END:** New. For extra large workpieces. Massive construction combines capacity and rigidity for bulky parts while permitting multiple-station work on smaller parts. Also available as SINGLE-END STYLE 771.

● **STYLE 2112-B SINGLE-END:** For work pieces in the small and medium-size range. Flexible hydraulic controls give easy adjustment of work cycle.

● **STYLE 112-D:** With long stroke for medium and heavy work requiring precision production.

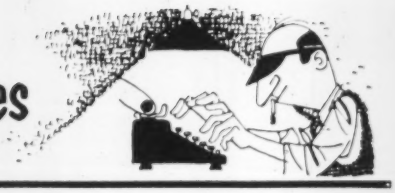
● **STYLE 17-A:** Massive construction to maintain highest precision at production speed. Economical and easily tooled for a wide range of jobs.

XLO *EX-CELL-O FOR PRECISION*

57-42A

EX-CELL-O CORPORATION DETROIT 32, MICHIGAN

behind the scenes



Pushed Through a Horn

Here we go again, blowing the old horn. Aside from receiving pay to do it, we confess unblushingly that it is no strain; the product we have to sell (STEEL) is so vibrant, so useful, we can cry its praises with all the enthusiasm of a television barker. Television and horns remind us of the jazz show that fluttered over the airwaves a few weeks ago. Did you (in the theatrical argot) catch it? Metalworking was well represented by the amazing variety of musical instruments: Horns, cymbals, wire strings, xylophones, bells, and whistles. Some of the greatest names in the musical entertainment business were featured, but beyond a few licks of solid Dixieland, we are still wondering what it was all about.

As each artist forced, tapped, plucked, or valved salvos of staccato bedlam from his instrument, he went into a trance; his features contorted, his eyes rolled 90 degrees north, and his writhing suggested that here was a person who had absent-mindedly ingested an adult tarantula.

When a performer gives his all on television, perhaps he is so deeply moved he goes into orbit. Not all performers, however. Editor Walt Campbell was requested to make a few remarks over the medium a week or so ago, and as far as we can determine he never shook; he never rolled his eyes; and our spies tell us that he was as relaxed as a tomcat full of milk.

On Stage!

What was it all about? Well, leave us take one of them horns we were talking about back there, Jackson, and give it a few licks, a real cool fanfare for a solid magazine.

When STEEL came out with its Cost Crisis Competition (Feb. 3, p. 158) it drew much favorable attention. As the series continued, and case histories were published to show how different metalworking organizations solved their separate cost problems, interest quickened and spread. Releases were picked up by wire services, magazines, newspapers, and house organs. Industrialists engaged in other pursuits made inquiry, and eventually Mr. Campbell put many of the magazine's findings into a sprightly illustrated talk.

Early in May, he appeared by request before the American Institute of Industrial Engineers in Cleveland. He comforted them with facts and figures, talked up the future, talked down pessimism, and pointed out that costs could be cut by current investment. "The slump," Mr. Campbell reminded his listeners, "started and has its deepest roots in the capital goods and metalworking industries. Machine tool orders for the first quarter are almost 60 per cent below those of the same period last year. Basic steel production is down almost 35 per cent."

Then he sailed into the necessity for a general overhaul of our depreciation laws, and almost before he knew it he was invited to repeat himself to an alert public over television station KYW and radio station WERE.

News That's Fit To Print

While we're still on the horn, blowing 8 to the bar, we should mention that the editors of the highly esteemed *Christian Science Monitor* approached your favorite metalworking weekly late in the winter with a request to learn what it was all about. "How," inquired the *Christian Science Monitor*, "does a trade paper covering a basic industry assist both busy executives and the economy in general?"

STEEL's editor wrote a 12-page answer, which the *Monitor* published in three sections, including photographs of Editor-in-Chief Irwin H. Such; George O. Hays, chairman of the Penton Publishing Co., which publishes STEEL; Editor Walter Campbell; a three-column cut of the magazine's census bureau; and a spread of STEEL covers.

Because the articles were well received, and because they were right to the point, we're going to lift a few paragraphs, and risk a test suit of copyright infringement. You see, this raises an interesting legal point: Material that appears in the *Christian Science Monitor* is protected by copyright, but since the material in question originated with STEEL, who, pray tell, has the right of way? Here we go:

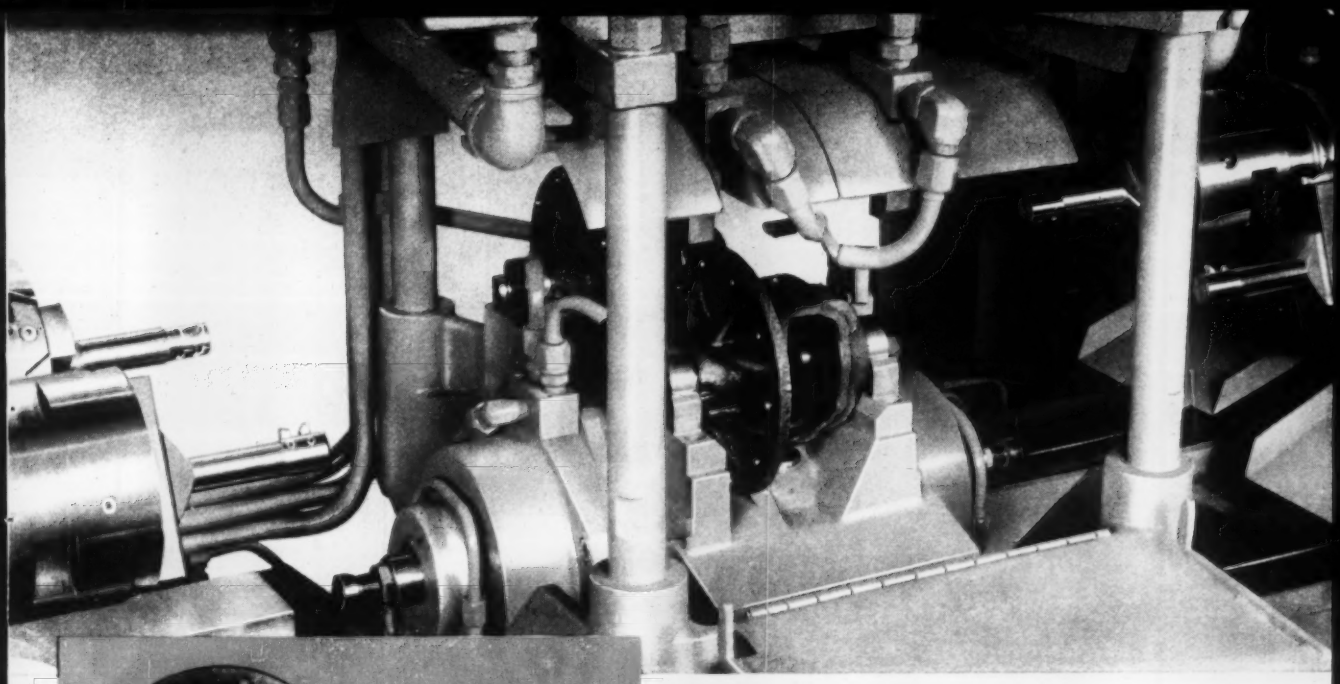
"Business papers are read intently by the people for whom they are edited. For others, they may hold little interest. STEEL is a good example of selective media. It is an industrial magazine, edited and directed to management personnel in metalworking companies.

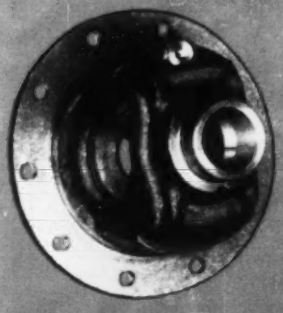
"The better business magazines have large and expertly trained staffs. STEEL's masthead lists 35 full-time editors, plus a network of correspondents in this country and abroad. Generally, the editors are college trained. Many have graduate degrees. Some are engineers. Many have had experience in the metalworking industry. Others are alumni of newspapers and other magazines. They are professionals."

And then, to show that STEEL has the cultural blind spot that makes it human, it also carries

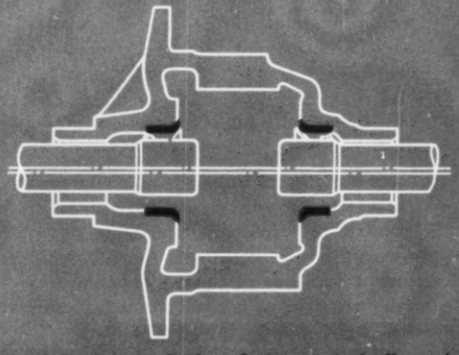
Shrdlu

(Metalworking Outlook—Page 39)

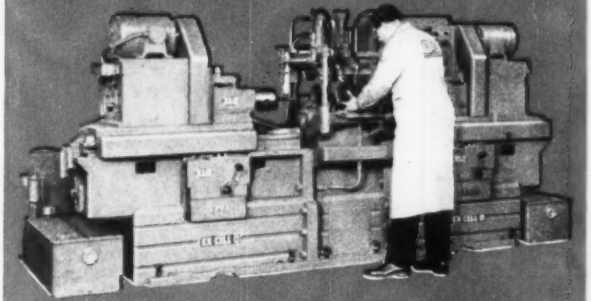




Above, close-up of parts in fixture. Overhead air clamps in position for loading and unloading. Part shown at left.



Internal boring and chamfering cuts indicated by black lines. Tolerances are held to ± .0005".



Ex-Cell-O Two-Way Precision Boring Machine ups production, increases accuracy.

XLO EX-CELL-O FOR PRECISION

Increases Production, Keeps Accuracy

Back-bores and Chamfers Differential Cases

If you want to increase production, yet maintain .0005" accuracy, get an Ex-Cell-O Two-Way Precision Boring Machine. That's the opinion of an automobile manufacturer.

Right now this machine is performing back-boring and chamfering operations inside steel automotive differential cases for this company. Boring bars enter the case on the center line of the bores, then move 5/32" off center, perform the cutting operations, then withdraw after returning to the center line. Two cases are machined at the same time.

Ex-Cell-O Way Machines perform as one, two, three, and four-way assemblies with exceptional versatility.

These machines adapt smoothly into automated lines, too. See your Ex-Cell-O representative or write Ex-Cell-O, Detroit.

EX-CELL-O CORPORATION
DETROIT 32, MICHIGAN
Machinery Division

MANUFACTURERS OF PRECISION MACHINE TOOLS • GRINDING AND BORING SPINDLES • CUTTING TOOLS • TORQUE ACTUATORS • RAILROAD PINS AND BUSHINGS • DRILL JIG BUSHINGS • AIRCRAFT AND MISCELLANEOUS PRODUCTION PARTS • DAIRY EQUIPMENT

57-24

Roebling Presents

THE NEWEST CONCEPT IN WIRE ROPE

*Herringbone**

two ropes in one!

Here is a combination that has proved itself during three years of field testing. A welcome addition to Roebling's great line of wire ropes, Royal Blue *Herringbone* is both a regular lay and lang lay wire rope!

So, in one rope you have the greater flexibility and abrasion resistance of lang lay construction *plus* regular lay's superior stability under severe operating conditions.

Preformed Herringbone is made of two *pairs* of lang lay strands, and two strands of regular lay which separate the two pairs of lang lay—all of it made of Type 1105 rope wire.

For three years Herringbone has been used for general hoisting, holding and closing lines, shovel ropes, wagon scraper ropes and dragline ropes. Without reservation, its performance has been superior to that of any other rope used for the same jobs . . . even in the hands of inexperienced personnel! *Its proven capabilities clearly suggest its use for all jobs where steel core ropes are normally used.*

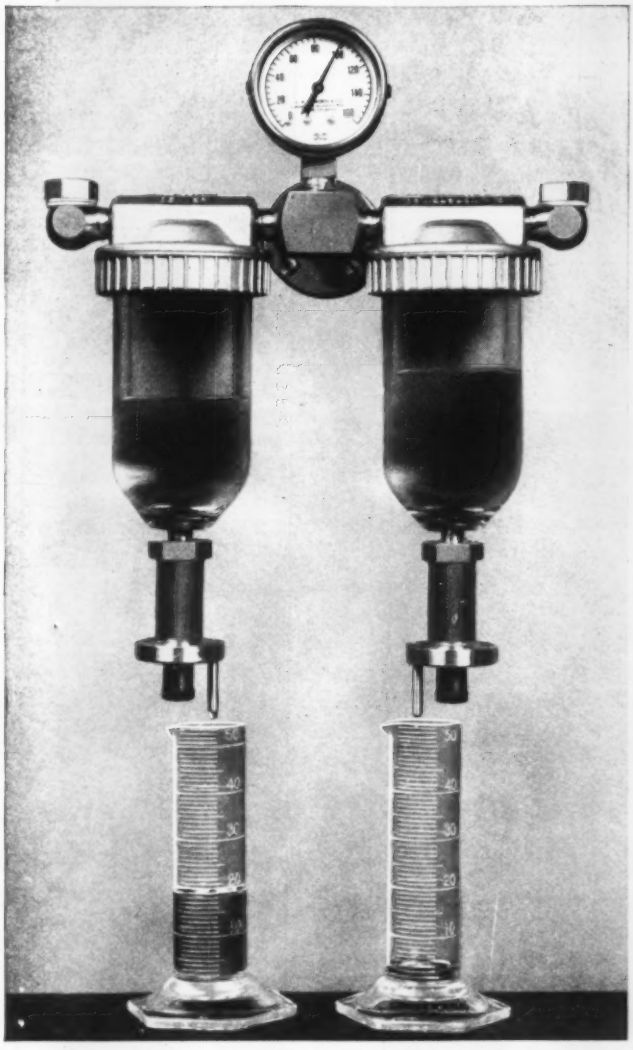
See your Roebling salesman for all the facts or write Wire Rope Division, John A. Roebling's Sons Corporation, Trenton 2, New Jersey. Roebling Herringbone, the two-in-one rope to meet the *doubly* stringent demands of today's economy.

ROEBLING JAR CF-I

Branch Offices in Principal Cities
Subsidiary of The Colorado Fuel and Iron Corporation

**Reg. app. for*

HERRINGBONE
WIRE ROPE



ANTILEAK DEMONSTRATION

Suntac oil in one chamber, your present hydraulic oil of the same viscosity in the other. Both oils are forced out through sintered bronze bearings. In this photograph, pressure of 100 psi caused a straight mineral oil to leak out four times faster than Suntac.

SUNTAC CUTS HYDRAULIC OIL LOSS AS MUCH AS 75%

See this demonstration in your plant

Take about five minutes at your own desk to learn how Suntac® oils stay put in hydraulic systems . . . reduce oil loss through loose joints and worn fittings.

Match Suntac against the hydraulic oil you're now using—see how the exceptional non-gummy antileak characteristics of Suntac can reduce your oil losses as much as 75%. *Some users have even reported savings of 90%.*

Call Your Sun Representative

Have him arrange with a Sun Lubrication Engineer to give you and your staff a private demonstration. For further information on the uses of Suntac in hydraulic systems and in general lubrication, write to SUN OIL COMPANY, Philadelphia 3, Pa., Dept. S-5.

SUNOCO®

INDUSTRIAL PRODUCTS DEPARTMENT

SUN OIL COMPANY PHILADELPHIA 3, PA.

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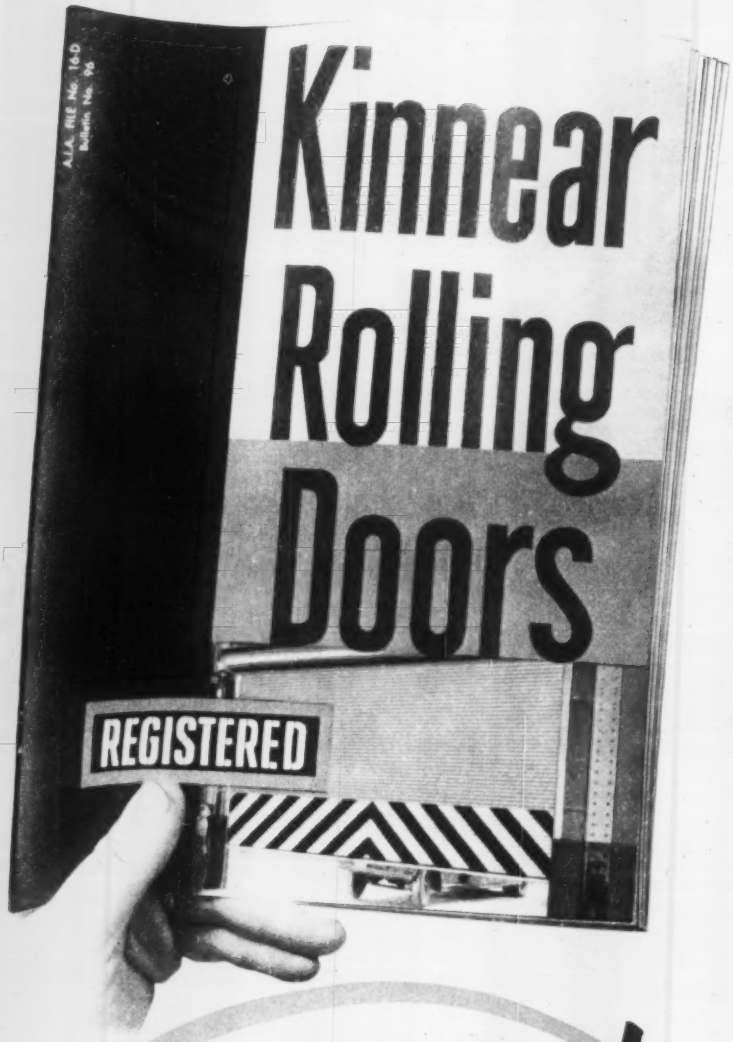


Get Action!

—The *upward action of interlocking slats that coil compactly above the opening:* That's the *action* (originated by Kinnear!) that provides an unbeatable combination of lower door costs and higher door efficiency. Kinnear Rolling Doors make all space around doorways usable at all times, open completely out of the way, give you a rugged curtain of all-steel protection against wind, weather, fire, and vandals. *Often* delivering up to 50 years or more of daily, low-maintenance service, they're also REGISTERED—all parts of every door can always be accurately duplicated from master details kept permanently in fireproof vaults. Get *all* these Kinnear Rolling Door benefits and more; write for this latest catalog, now . . .

Take Action!

KINNEAR
ROLLING DOORS
Saving Ways in Doorways

The KINNEAR Mfg. Co.
Offices and Agents in All Principal Cities
FACTORIES:
1780-1800 Fields Ave., Columbus 16, Ohio; 1742 Yosemite Ave., San Francisco 24, Calif.

LETTERS
TO THE EDITORS

Rush Reprints to Meeting

PLEASE RUSH 24 COPIES OF "LET'S LEAP TO RECOVERY WITH BOLD ACTION ON DEPRECIATION" FROM APR. 28 ISSUE TO MY ATTENTION, EDEN ROC HOTEL, MIAMI BEACH, FLA., FOR OUR CONVENTION BEGINNING MAY 5.

Randy Vinson
Executive Director
Machinery Dealers National Association
Washington

Lauds Service to Readers

Your Program for Management articles are helpful to us. In publishing them, you are rendering a distinct service to your readers who have management responsibilities.

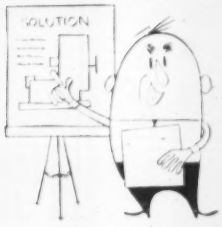
W. E. Clifton Jr.
President
American Art Metals Co.
Atlanta

Valuable Information

I believe that the "Guide to Tool Steels & Carbides" (Apr. 21 insert) is a valuable piece of information. I would appreciate an additional copy.

D. M. Kelman
Supervising Engineer
Westinghouse Electric Corp.
Blairsville, Pa.

Customer Holds Solution



Your article, "Builders Hit Trade Squeeze" (Apr. 21, Page 57), does a good job of presenting the protectionist case for high machine-tool tariffs. But despite fancy footwork with figures (a tricky change in scale, for example, on your two main graphs to imply that imports are leaping ahead of exports when, in actuality, they're less than 40 per cent as great) the fact remains that a sizable group of people stands to gain from permitting free enterprise to function internationally as well as domestically.

This group, of course, comprises the machine tool users—and ultimately their customers. Although these buyers, as usual, may not have much of a voice in Congress, many of them are as important to the "national security" as machine tool builders.

Perhaps the best advice to tool build-

(Please turn to Page 12)

Thousands of rivets or blanks for cold headed Brainard Specials are produced in only minutes (3½ million pieces daily) on this battery of modern cold headers from Youngstown Rivet Quality Wire.

Accent on excellence

Youngstown solid rivet wire

Brainard Rivet Company of Girard, Ohio, daily produces rivets "by the millions". But they realize a rivet is only a rivet—so quality and fast, dependable service are the products they're really selling.

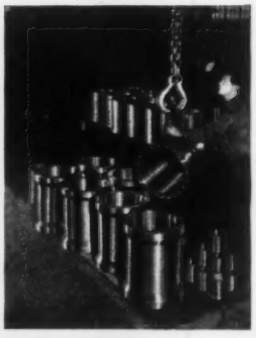
To help in maintaining Brainard's high product quality on a steady, dependable production basis is Youngstown's Solid Rivet Quality Wire. It is free of all injurious seams and inclusions which guarantees long, trouble-free production runs on Brainard's cold headers.

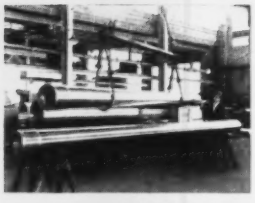
Wherever steel becomes a part of things *you* make, the high standards of Youngstown *quality*, the personal touch in Youngstown *service* will help you create products with an "accent on excellence".

QUALITY YOUNGSTOWN SERVICE

THE
YOUNGSTOWN
SHEET AND TUBE COMPANY

Manufacturers of Carbon, Alloy and Yoloy Steel, Youngstown, Ohio





Your parts last longer when they're

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Your machine parts, ferrous or non-ferrous, are subject to stress, strain and friction, day after day, year after year . . . so specify Shenango . . . and see what a difference this makes!

Shenango's centrifugal casting process insures longer life because of finer, more uniform, *pressure-dense* grain to begin with . . . free of inclusions, porosity, blowholes and other weakening defects. Then, far less machining is needed and your part is stronger . . . to last and last *and last!*

Shenango's modern and fully-equipped shops will supply you with ferrous or non-ferrous symmetrical parts in virtually any shape or size . . . rough, semi-machined or precision-finished to your most exacting specifications. For full details, write: *Centrifugally Cast Products Division,* The Shenango Furnace Company, Dover, Ohio.

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MONEL METAL • NI-RESIST • MEEHANITE® METAL • ALLOY IRONS

LETTERS

(Concluded from Page 10)

ers appears not in this article but in one following in the same issue concerning the Zagar Corp. ("Zagar Routs Recession," Page 60). That firm is trying to lick the competitive situation not with bigger petitions to more congressmen but with better products and promotion to more customers.

In the final countdown, it's the customer who writes the rules in our complex economy; and constant government meddling in industry, as on the farm, can only lead to chronic and expensive headaches.

Lloyd A. Gerlach
3240 Wetzel Lane
Brookfield, Wis.

Editorial to Salesmen

We were interested in your editorial, "No Time To Read?" (Mar. 31, Page 45). It contains an important message of interest not only to management but to anyone whose welfare depends upon his ability to keep abreast of the current scene.

We would like to give our salesmen the opportunity to read this editorial and would appreciate your permission to reproduce it for distribution to our men.

John G. Vogeler
Advertising Manager
Data Processing Div.
Royal McBee Corp.
Port Chester, N. Y.

• *Permission granted.*

Article Circulated to Staff

We are circulating the article, "How To Sell Ideas to Bosses" (Apr. 7, Page 71), to our staffmen because of its value and would appreciate another copy.

H. J. Meyfarth
Assistant Division Manager
Steel & Tubes Div.
Republic Steel Corp.
Cleveland

Boss Borrows Reprints

Thank you for the reprints of your 1957 Program for Management. These articles are being read with considerable interest. In fact, I have lost them temporarily, I believe, to our general manager.

J. J. Sheehan
Purchasing Agent
Turbo Products Div.
Clark Bros. Co.
Olean, N. Y.

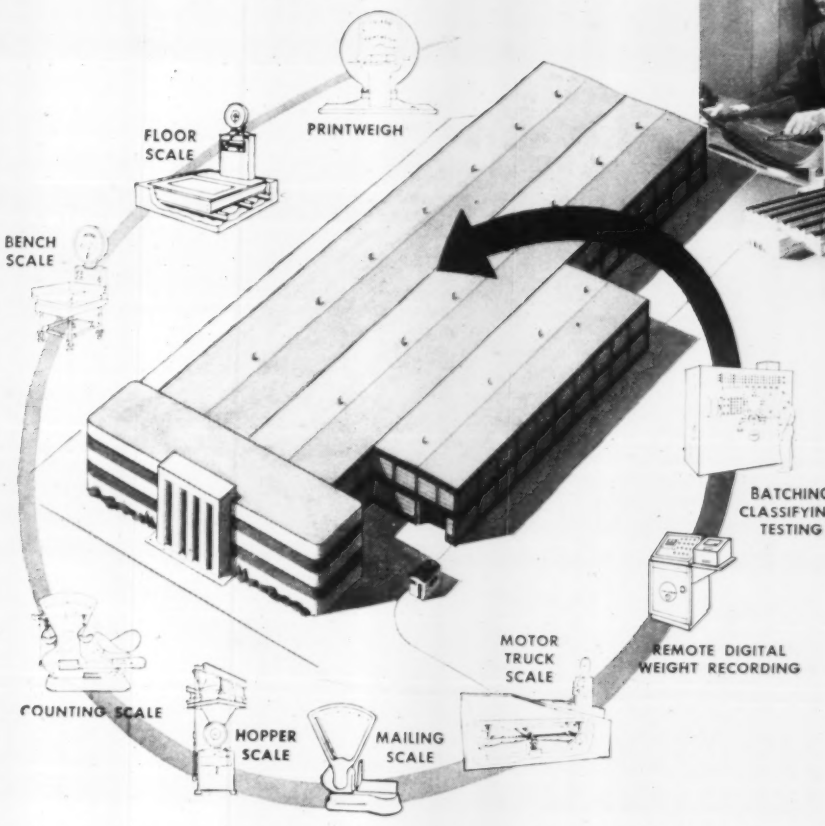
Association Address Sought

Your Apr. 21 issue carried the article, "Listen To Your Employees" (Page 68). Please advise the address of the National Association of Suggestion Systems mentioned in it.

S. X. Kaplan
Pioneer Industries Inc.
Sioux City, Iowa

• *The address is 25 E. Jackson Blvd., Chicago 4, Ill.*

Studying Costs? It pays to start with a Plant-Wide Look at WEIGHING!



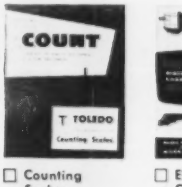
You can lessen the impact of rising costs by making sure your scales are doing the best possible job. Remember that weighing today is not a job for isolated scales—it's a vital element in your overall cost control system.

Weight records affect costs, quality, inventory control and customer billing. Weighing errors, or inadequate weight data, can be avoided by having the right scales in the right places . . . all carefully integrated in a plant-wide weighing system to supply basic records on materials received, shipped or transferred. Check your needs now! TOLEDO SCALE Div. of Toledo Scale Corp., 1422 Telegraph Road, Toledo 13, Ohio.

TOLEDO SCALE *Headquarters for Weighing Systems*

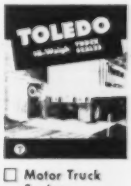
DIVISION OF TOLEDO SCALE CORPORATION

☐ **NEW TOLEDO WEIGHT FACT KIT** will help you determine how well your scales measure up as a weighing system—help you detect weighing losses that drain profits. Request your kit now. No obligation.



☐ Counting Scales

☐ Electronic Load Cell Scales

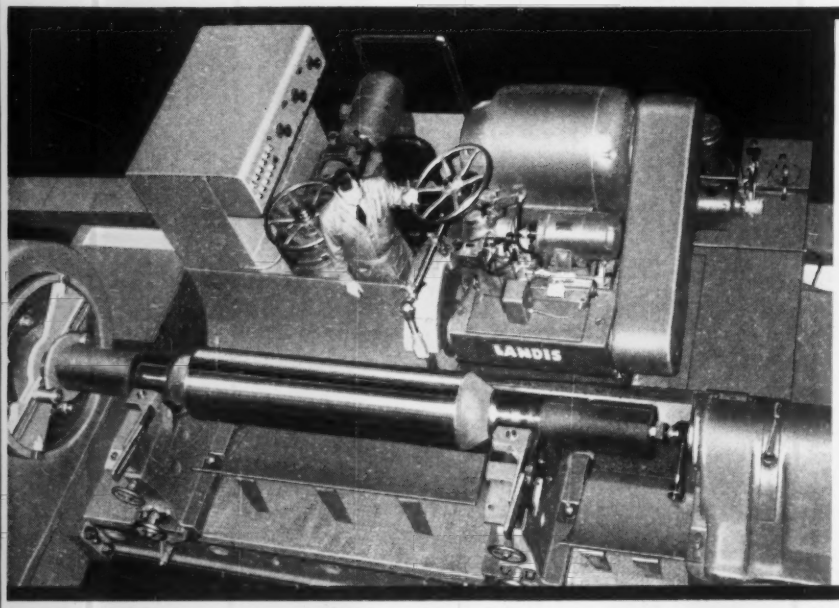


☐ Motor Truck Scales

☐ Electronic Remote Digital Weights

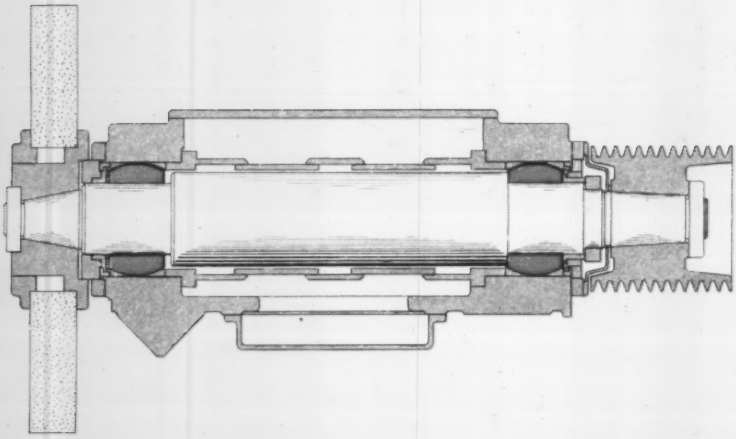
☑ WE'LL BE GLAD TO MAIL THE LITERATURE YOU CHECK.

Features of Landis precision roll grinders



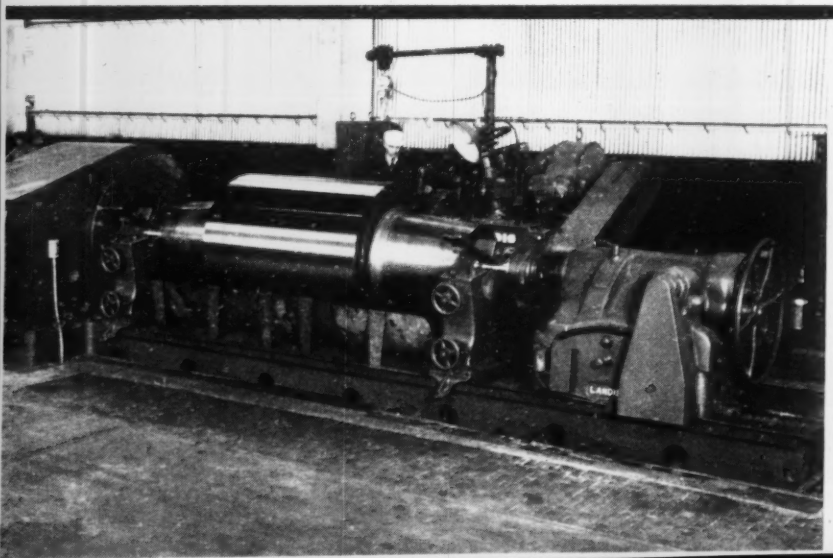
Conveniently grouped controls

Less operator fatigue and shorter setup time result from convenient positioning of operating controls. Full view of grinding wheel and roll from operating position.



Exclusive Microsphere bearings

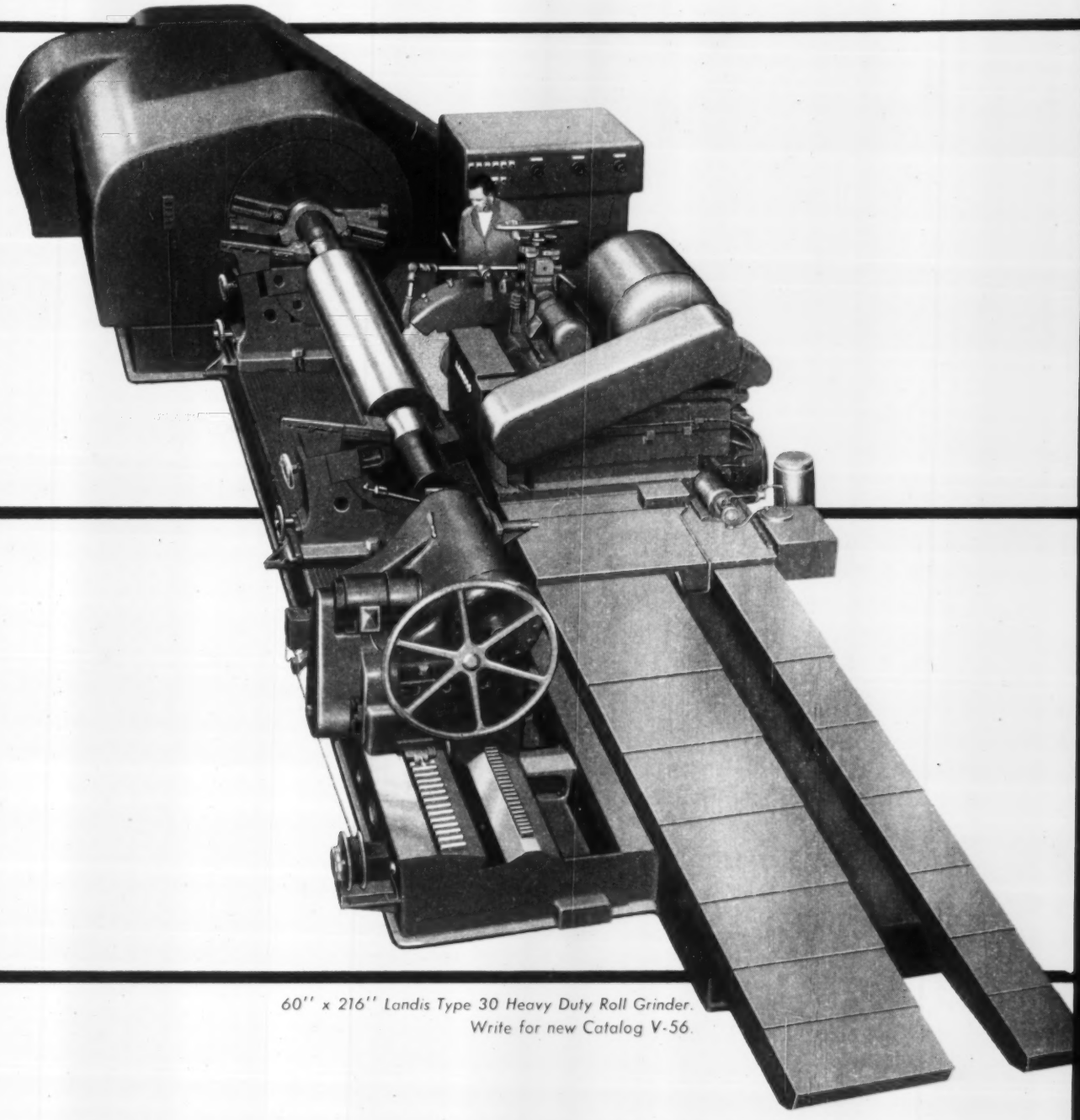
Close running clearance of Landis Microsphere spindle bearings plus "rigidized" wheel spindle, with increased diameter between bearings, permit heavy cuts and fine finishes.



Reserve power for heavy work

Ample horsepower for both wheel drive and roll drive, combined with massive rigid construction of machine, permits easy starting of rolls and heavy roughing cuts.

reduce grinding time . . . cut costs



60" x 216" Landis Type 30 Heavy Duty Roll Grinder.
Write for new Catalog V-56.

LANDIS

precision grinders

LANDIS TOOL COMPANY / WAYNESBORO, PENNSYLVANIA

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you enjoy both hotel comforts, motel conveniences

only at the new...

Park Plaza
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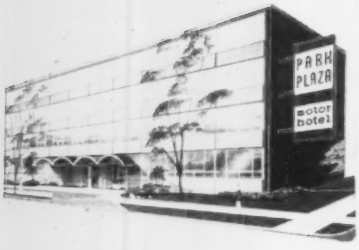

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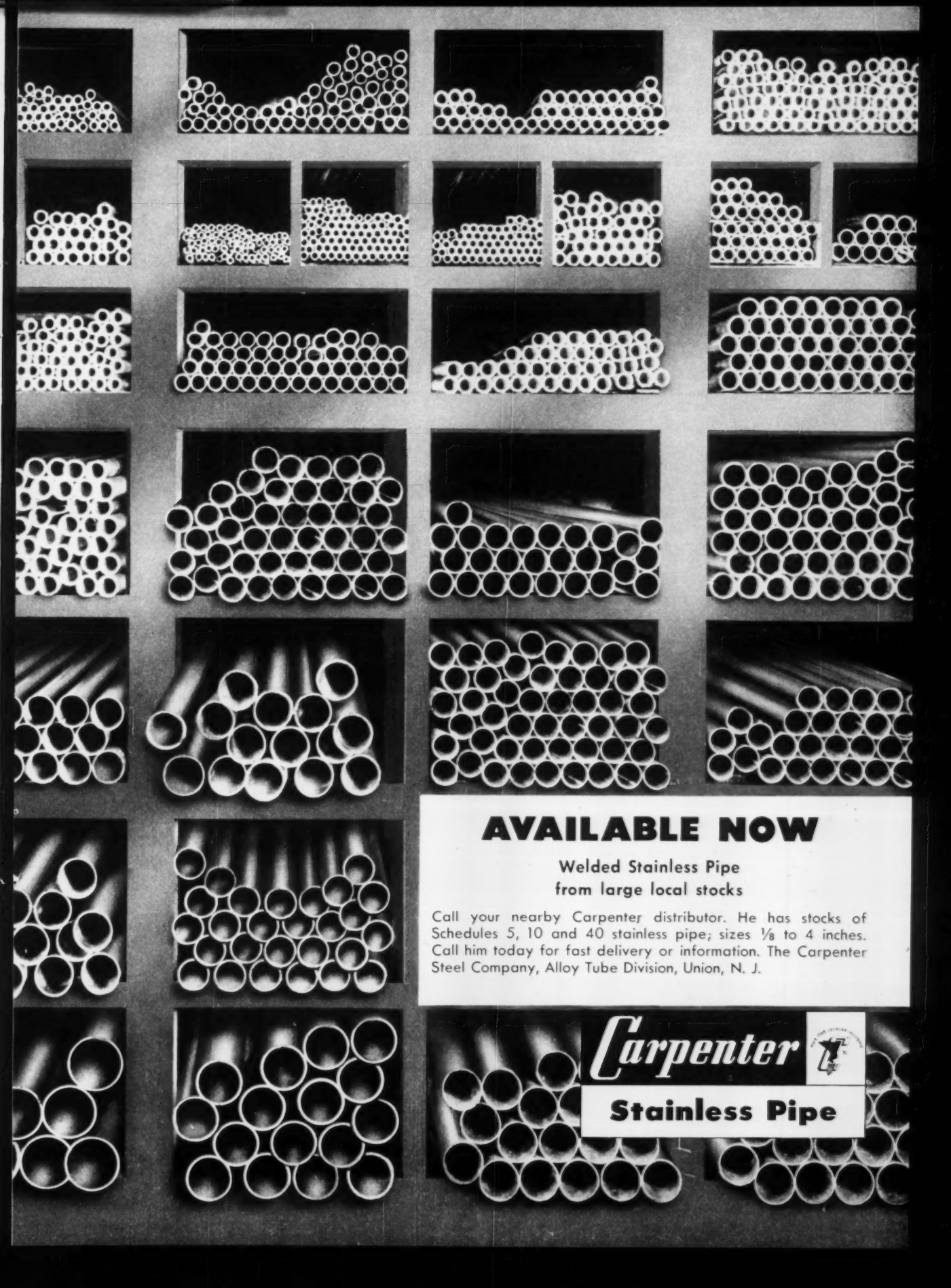

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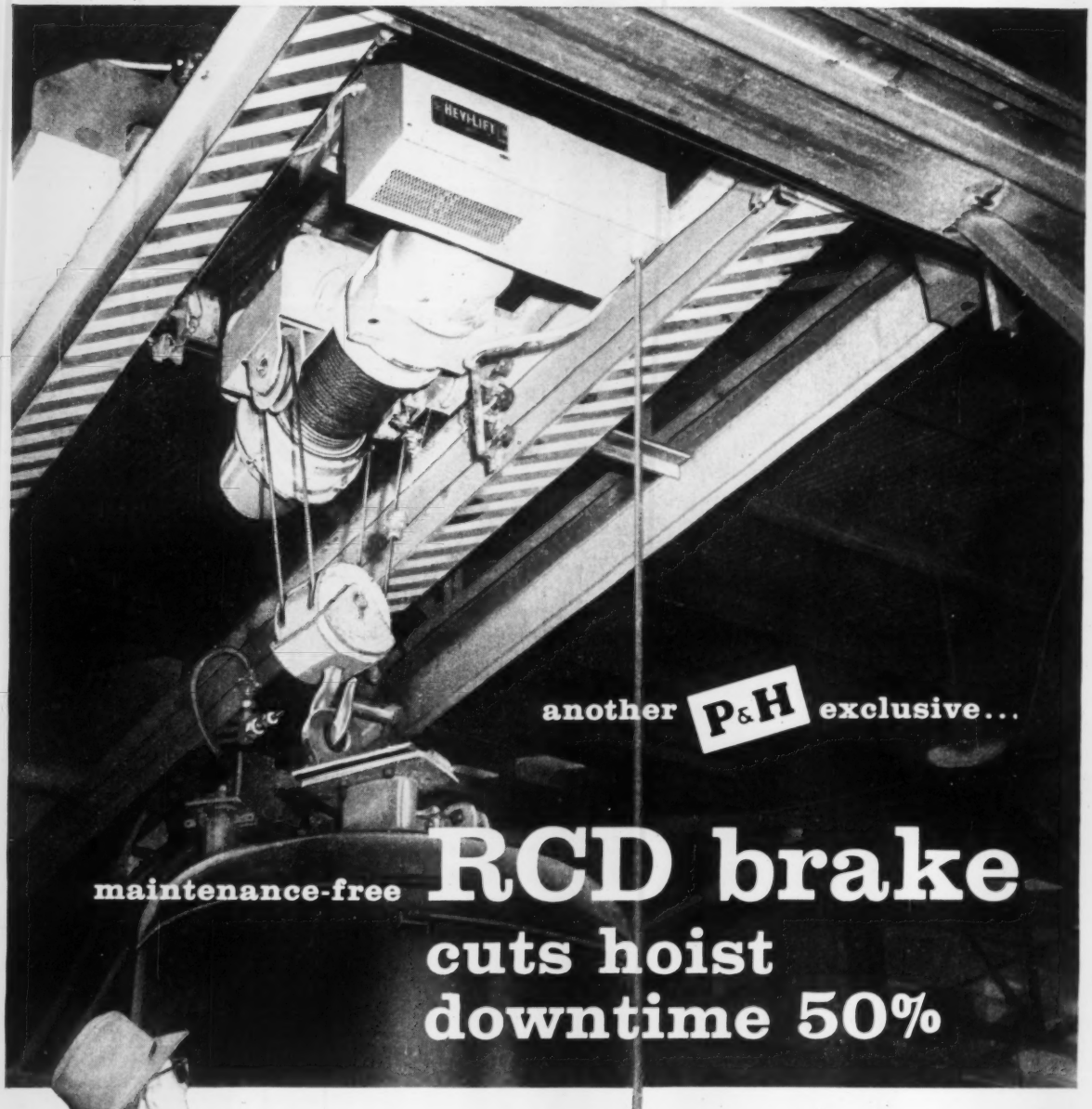
Welded Stainless Pipe
from large local stocks

Call your nearby Carpenter distributor. He has stocks of Schedules 5, 10 and 40 stainless pipe; sizes ⅛ to 4 inches. Call him today for fast delivery or information. The Carpenter Steel Company, Alloy Tube Division, Union, N. J.

Carpenter

Stainless Pipe



another P&H exclusive...

maintenance-free RCD brake cuts hoist downtime 50%

Brake repairs eat up more than half of the money you spend on hoist maintenance. Impartial surveys prove it!

Now you can put a stop to this drain on your budget *and* the often costlier production delays involved. Replace your present hoist with a P&H Hevi-Lift® — the only hoist that has the mill-type, maintenance-free RCD brake.

The RCD has no clapper, no linkage, no laminations — total stroke is only 1/32 of an inch. Braking is fast, positive. There's no violent hammer-action to cause wear on parts.

Bulletin H-5 has all the facts on the RCD brake and P&H Hevi-Lift hoists. Get it from your P&H Hoist distributor. Or write Dept. 203F, Harnischfeger Corp., Milwaukee 46, Wisconsin.

HARNISCHFEGER

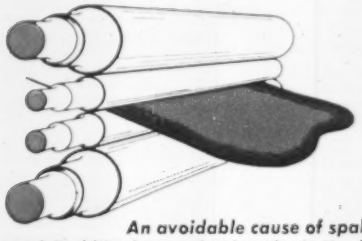
P&H ...quality and service for 74 years

TIPS FROM A ROLL MAKER'S NOTEBOOK

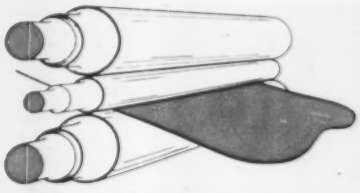
MACKINTOSH-HEMPHILL DIVISION, E. W. BLISS COMPANY, Pittsburgh 3, Pennsylvania

Cast mill rolls • Johnston cinder pots • rotary tube straighteners • end-thrust bearings • heavy-duty lathes • steel and special alloy castings

How to get longer life from plate mill work rolls



An avoidable cause of spalling: Uncropped "cold" edges and sides "bruise" rolls by causing over-stressing at the edges. Sub-surface fatigue cracks develop in these areas and roll starts to spall.

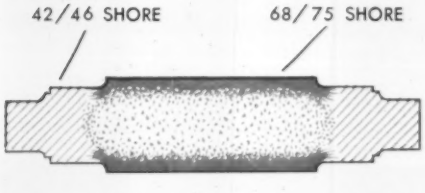


Some strength can be "swapped" for extra wear resistance in the middle roll of a 3-high mill, which gets approximately three times as much wear as the top and bottom rolls.

In plate mill work rolls, the balance of strength-vs.-hardness varies with the type of mill, the stand, and the rolling stresses involved. In general, however, the harder the rolls, the better.

This is particularly true of the work rolls in a 4-high mill and of the middle roll in a 3-high mill when used for finishing passes. On the other hand, the absence of grinding facilities in some plants often puts a limit on hardness, since the rolls must be soft enough to machine.

Spalling and fire cracking – With the many suitable combinations of mechanical properties available today, the life expectancy of a cast iron plate mill work roll depends largely on its resistance to fire cracking and spalling. And the current demand for good plate finish has placed even more emphasis on roll surface condition.



Triple-poured Nironite "F" roll, showing hardness ranges for the roll surface and the neck.

Three kinds of iron in a single roll – Mack-Hemp metallurgists have answered all these requirements in the *Nironite "F"* roll, a high-alloy grain-type roll.

Nironite "F" rolls are always double-poured, and sometimes even triple-poured. The deep outer shell is nickel-chromium alloy iron—very hard, very dense, and highly resistant to fire cracking. The second metal, a soft gray iron, provides the strength and resistance to impact needed in the core. Finally, the necks of all large Mack-Hemp plate mill rolls are cast with a third alloy whose carbon content is closely controlled. This third pour eliminates the tendency to weakness and coarse grain structure often encountered in the necks of double-poured plate mill rolls (a result of the slow cooling rate of the large mass of metal in the necks). It provides increased strength and a fine grain structure that prolongs the life of the roll neck bearings.

Another Nironite grade—*Nironite A*—is also widely used for work rolls in many plate mills. A single-poured cast iron grain roll of slightly lower alloy content than the iron of the first pour in Nironite "F" rolls, it provides excellent strength properties at somewhat lower hardness levels.

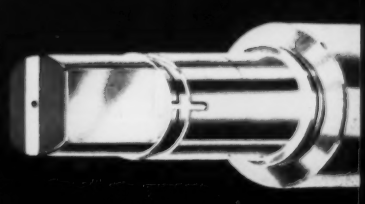
No matter what type of rolling you do . . . ferrous or non-ferrous . . . Mack-Hemp roll engineers and metallurgists can help you with your special problem. Simply write Mackintosh-Hemphill Division, E. W. Bliss Company, 901 Bingham Street, Pittsburgh 3, Pa.

MACKINTOSH-HEMPHILL

You get more tonnage from the rolls with the Striped Red Wabblers

Division of E. W. BLISS COMPANY

Presses, Rolling Mills, Special Machinery



ELECTRONIC and ULTRASONIC quality control of MUELLER rod, tube, fabricated parts and

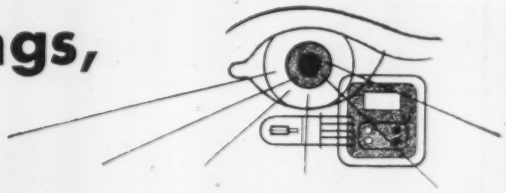
Every practical electro-mechanical testing device available to industry today is used by the Mueller Brass Co. to maintain Positive Quality Control during each manufacturing operation. From the first stages of alloying, spectroscopic analysis is used to maintain exact alloy composition so that they are precisely as specified. Ultrasonic test equipment is utilized in the non-destructive testing of extruded brass and bronze rod, copper tube, forgings and fabricated parts. In machining and finishing operations, statistical quality control is employed to eliminate the effect of possible human error. These quality controls are all designed for one purpose . . . to give you complete "product protection."

•

Copper base alloy rod is examined by a trained operator with the aid of an ultrasonic reflectoscope. Through electronic circuitry, ultrasonic echoes are translated on a cathode ray tube. Any internal flaws are readily apparent. Both rod and tube are tested by this method, which is just one of many Positive Quality Control checks used by the Mueller Brass Co.

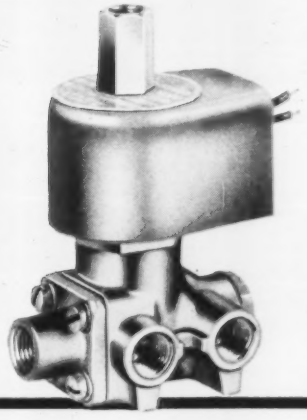
Through ultrasonics, the immerscope (Left) locates internal defects, and has exceptional versatility for examining intricately shaped parts, such as the forging being checked in this photo. When testing, a transducer, located at the bottom end of the search tube, is electronically actuated to produce from 2.2 to 25 million cycles per second. Ultrasonic echoes are reflected back to the transducer from the material, indicating any defects that may be present. Limits may be pre-established and the sound findings are visually recorded on the cathode tube. This is another instance of Positive Quality Control in action.

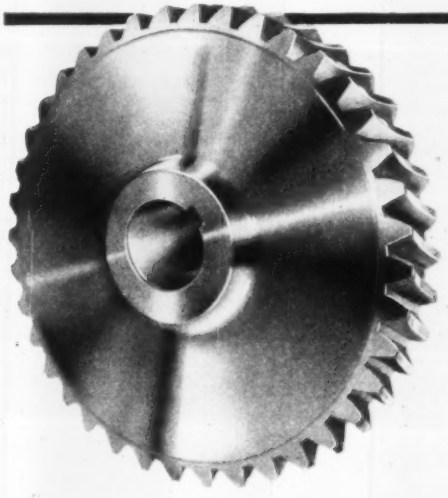
TESTING helps insure positive BRASS CO. forgings, assemblies . . .



The direct reading spectrometer (Left) makes it possible to accurately analyze an alloy for chemical composition within 90 seconds while the metal is in the molten stage. A sample specimen is poured, cooled and sent to the laboratory, where it is placed in the spectrometer. Through the diffraction gratings in the machine, the "spectrum" analysis of the alloy records its exact chemical composition. With this equipment, alloy specifications are matched exactly, thus insuring a better finished product through Positive Quality Control.

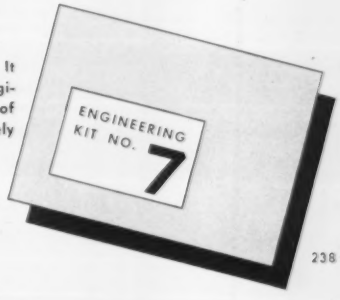
THIS MIDGET 4-WAY SOLENOID VALVE (Right) is one of a complete line designed and manufactured by the Automatic Switch Co. of Florham Park, New Jersey, and is used for operating valves, dampers, and many types of automatically controlled equipment. One of the most important components in these valves is the non-porous brass body forged by the Mueller Brass Co. who also perform all the major machining operations so that the body is ready for use upon delivery. The forged brass body insures freedom from porosity and reduces possibility of corrosion. The Mueller Brass Co. Positive Quality Control program insures ASCO complete "product protection" . . . and eliminates chance of "in-service" failures.





THIS LARGE 18" FORGED GEAR, along with two others of the same type, is used in a steam turbine installed in a power generation facility of the Wisconsin Electric Power Company, at Port Washington, Wisconsin. The gear was forged in open dies by the Mueller Brass Co. from tough, long-wearing 603 alloy. The gear operates at 25-30 RPM and is turned by the turbine, which has a capacity of 80,000 kilowatts. Strength and dependability are of utmost importance in applications like this, and in such cases Positive Quality Control insures peak performance.

Write for your engineering kit no. 7. It contains complete laboratory and engineering data plus typical examples of Mueller Brass Co. products used in widely diversified applications.



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WASHBURN

has reached even higher standards of QUALITY than ever before. Our **CADMIUM** plated Music Wire especially merits your careful investigation if you are interested in superior corrosion resistance.

Our QUALITY will satisfy you . . . Our SHIPMENTS prompt, from ample stock . . . Our INTEREST in Customer requirements means "Once a Washburn Customer Always a Washburn Customer"

100

WASHBURN

WASHBURN WIRE COMPANY, NEW YORK CITY

CLEAN, UNIFORM BILLETS – STRIP – RECTANGULAR, ROUND, FLAT RODS

TEMPERED AND UNTEMPERED FLAT AND ROUND HIGH CARBON WIRES

CALENDAR
OF MEETINGS

May 13-15, Investment Casting Institute: Spring meeting, Edgewater Beach Hotel, Chicago. Institute's address: 27 E. Monroe St., Chicago 3, Ill. Executive secretary: H. P. Dolan.

May 14-16, Society for Experimental Stress Analysis: Spring meeting, Hotel Manger, Cleveland. Society's address: P. O. Box 168, Cambridge 39, Mass. Secretary-treasurer: W. M. Murray.

May 15-16, American Management Association: Special marketing conference on sales forecasting, Drake Hotel, Chicago. Association's address: 1515 Broadway, New York 36, N. Y. President: Lawrence A. Appley.

May 15-16, National Industrial Conference Board Inc.: General session for all associates and annual meeting, Waldorf-Astoria Hotel, New York. Board's address: 460 Park Ave., New York 22, N. Y. Secretary: Herbert S. Briggs.

May 18-21, Industrial Heating Equipment Association: Semiannual meeting, Homestead, Hot Springs, Va. Association's address: Associations Bldg., Washington 6, D. C. Executive vice president: Robert E. Fleming.

May 19-20, American Management Association: Special economic mobilization conference, Hotel Astor, New York. Association's address: 1515 Broadway, New York 36, N. Y. President Lawrence A. Appley.

May 19-21, National Association of Metal Finishers: Annual meeting, Sheraton-Gibson Hotel, Cincinnati. Association's address: 60 Bentley Rd., Cedar Grove, N. J. Executive secretary: P. Peter Kovatis.

May 19-21, Nonferrous Founders Society: Annual meeting, Hotel Carter, Cleveland. Society's address: 1604 Chicago Ave., Evanston, Ill. Executive director: Herbert Scobie.

May 19-22, American Electroplaters' Society: Annual meeting, Sheraton-Gibson Hotel, Cincinnati. Society's address: 445 Broad St., Newark 2, N. J. Executive secretary: John P. Nichols.

May 19-23, American Foundrymen's Society: Annual castings congress and show, Public Auditorium, Cleveland. Society's address: Golf and Wolf Roads, Des Plaines, Ill. General manager: W. W. Maloney.

May 21-22, American Iron & Steel Institute: Annual meeting, Waldorf-Astoria Hotel, New York. Institute's address: 150 E. 42nd St., New York 17, N. Y. Secretary: George S. Rose.

May 21-23, Electronic Industries Association: Annual meeting, Sheraton Hotel, Chicago. Association's address: 1721 DeSales St. N. W., Washington 6, D. C. Secretary: James D. Secrest.

rapid
short flame combustion
...even on residual fuel oil

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VORTEX BURNER

Here is a versatile unit that gives rapid, clean combustion on a wide range of fuels including Bunker C, No. 6, light oil, any gas . . . even liquid organic wastes.

Combustion is 80% completed within the burner itself and takes place with a whirling, short flame that attains heat release rates of over 1,000,000 BTU/hr per cu ft. Products of combustion are clean and sufficient excess air for tempering the products may be introduced through the burner itself without causing smoke or instability.

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Gas-electric or torch ignition allows full ignition in a few seconds—even with a cold burner.

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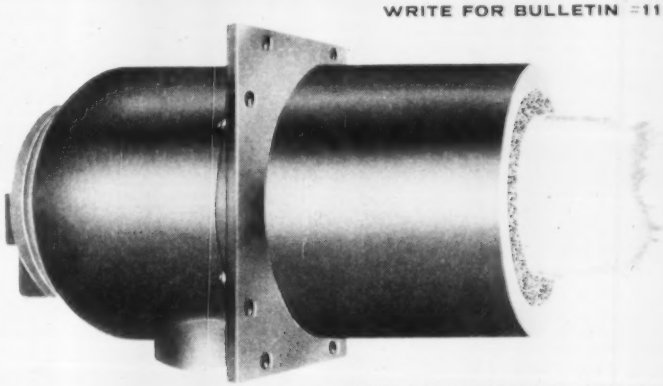

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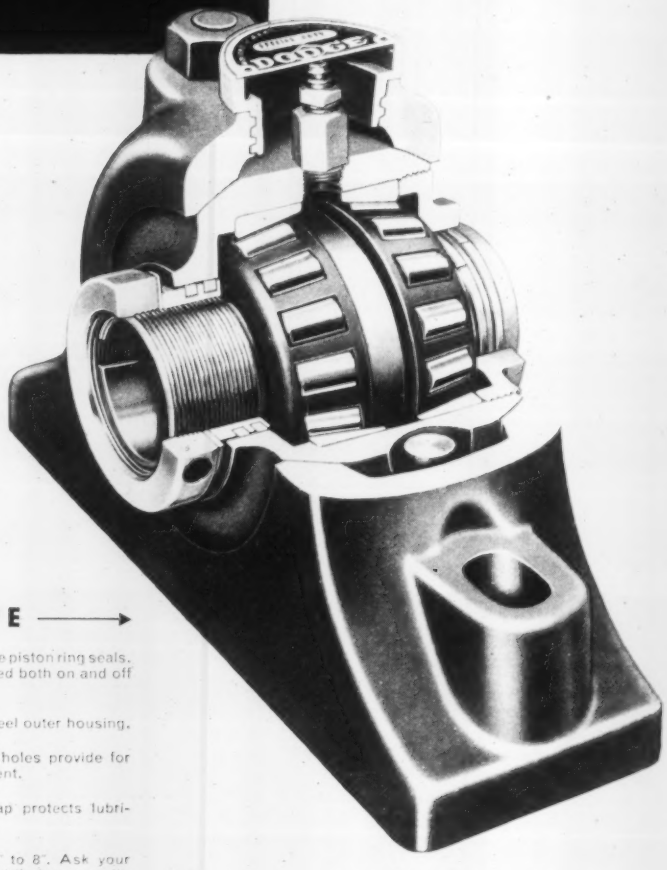
America's super-quality line—with a 34-year record of keeping performance *up* and costs *down!* Five types—to fit practically any service condition. All assembled, adjusted, lubricated and *sealed* at the factory for precision performance—long life—dependability.



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To be more explicit, fabricators are apt to specify Jessop stainless steel plate for the following very good reasons: First of all, they don't have to wait in line for delivery. Jessop operates a compact, highly adaptable stainless plate department—all under one roof from melting to finishing. Schedules can be adjusted overnight to fill a rush order. And they get *good* plate. Jessop's advanced new chemical control equipment and techniques guarantee that. So if you are a fabricator and need good stainless plate fast, send your next order to Jessop. You'll be glad you did. Write for literature.

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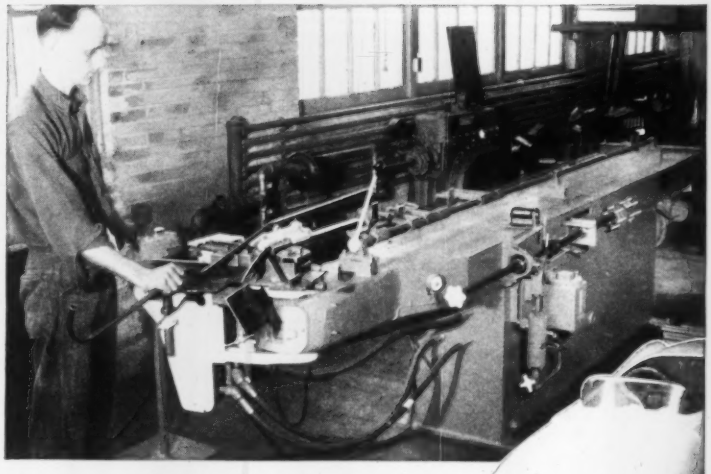
With PINES HYDRAULIC BENDER



Over-all view of Pines Size ¾ Bender at Flexsteel Spring Division used for outside job work as well as for their own manufacturing needs. Application illustrates setup for bending long side members for toy Corvette car.

Automatic Cycling Speeds Job Work for Flexsteel Spring Division - Dubuque, Iowa

Here's another typical example of fast, efficient production bending illustrating the outstanding advantages of automatic cycling, a standard feature on most Pines machines. Flexsteel Spring Division, Northome Furniture Industries, Dubuque, Iowa, used this set-up to produce frames for a toy Corvette car from 5/8" 18-gauge welded steel tubing. Records show that over a period of three months, net production on workpiece illustrated averaged 140 pieces (840 bends) per hour. On this job requiring six bends of the same radii ($1^{13}/_{16}$"), the operator simply positions the tubing for each bend and presses the forward button. Pre-set indexing stops automatically control the angle for each bend in sequence while the operator rapidly positions the workpiece. Automatic cycling saves valuable production time and accounts for the high efficiency rate maintained.

Accuracy Maintained at High Production Speeds

Another well-known advantage of Pines machines is their ability to maintain accuracy. Tolerances of .030 to .040 at several check points are commonly held without difficulty, simplifying welding, assembly, or other fabricating operations. In addition, all Pines machines are designed for small radius bending with mandrels, as well as for bends of the type illustrated not requiring mandrels. For accuracy and efficiency, it will pay you to specify Pines.

Simple positioning gauge determines plane of each bend. View shows position for making sixth bend for right-hand frame member. Both right-hand and left-hand members are produced on same setup.

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PRODUCTION BENDING • DEBURRING • CHAMFERING MACHINERY

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Ask for up-to-date case study material on production bending the "Pines-Way." Full information available, including tooling and setup data used for producing steel channels, rods, extrusions, pipe, and tubing. Or for assistance on any job, ask for a Pines sales engineer to call.

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How much do you spend on removing rust before you paint? Why not coat right over the sound rusted metal with Rust-Oleum 769 Damp-Proof Red Primer after simple scraping and wire-brushing to remove rust scale and loose rust . . . saving time, money, and metal! Rust-Oleum's specially-processed fish oil vehicle penetrates* through rust to bare metal—while the surface film remains *tough*, *firm*, and *durable*. You cut costly surface preparations, you receive nearly 30% greater coverage depending upon the condition and porosity of the surface—and you receive the *maximum* in over-the-years protection!

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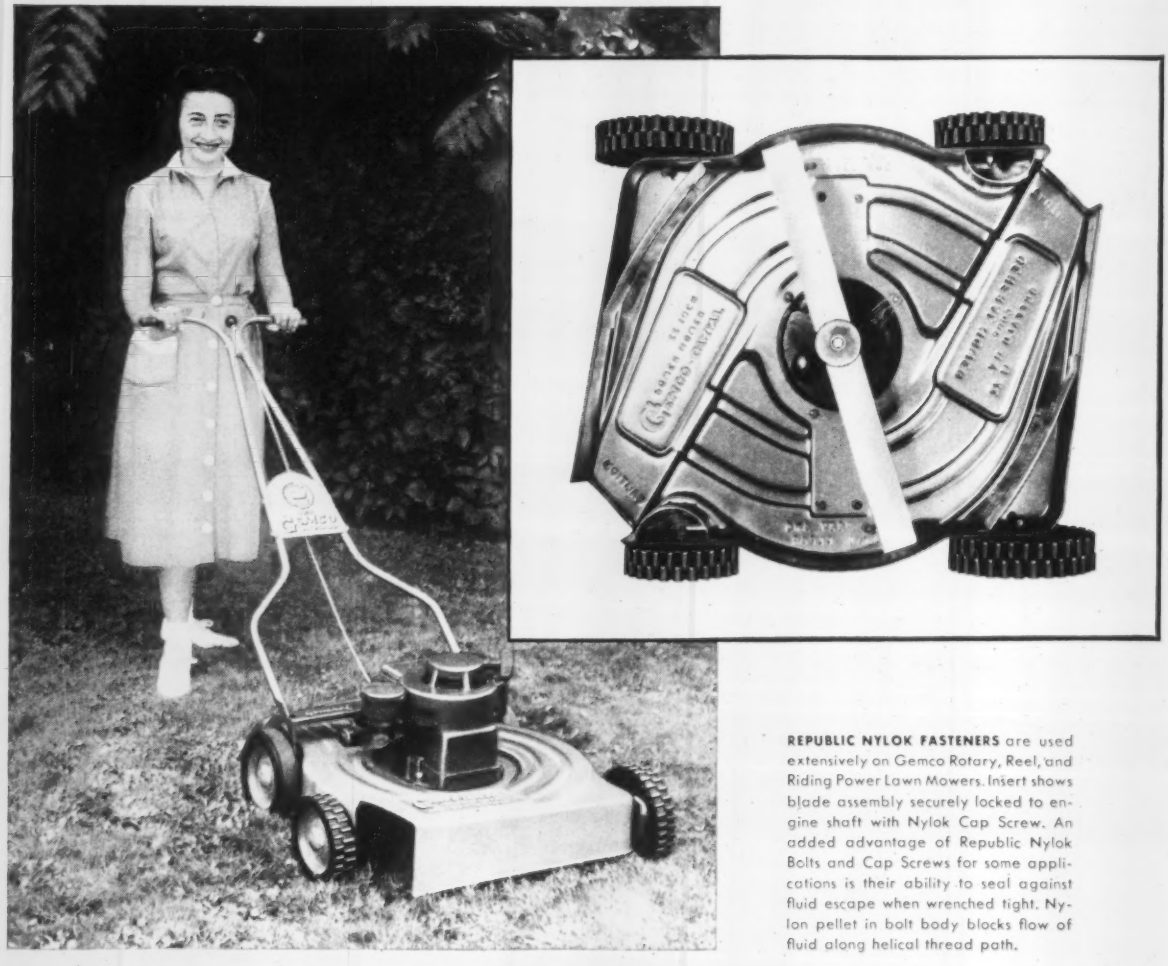
In Gemco Power Mowers,

REPUBLIC NYLOK FASTENERS SAFEGUARD PERFORMANCE SPECIFICATIONS



REPUBLIC NYLOK FASTENERS are used extensively on Gemco Rotary, Reel, and Riding Power Lawn Mowers. Insert shows blade assembly securely locked to engine shaft with Nylok Cap Screw. An added advantage of Republic Nylok Bolts and Cap Screws for some applications is their ability to seal against fluid escape when wrenched tight. Nylon pellet in bolt body blocks flow of fluid along helical thread path.

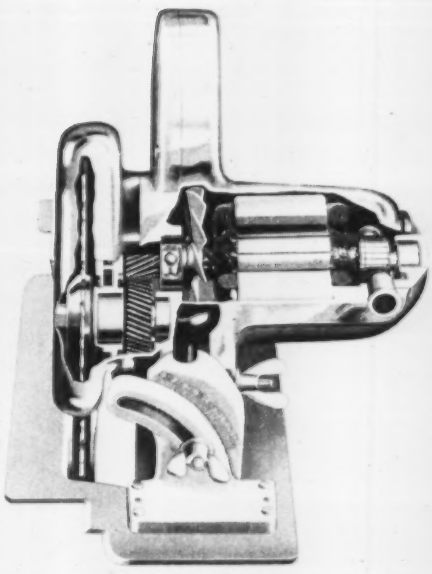
Modern Gemco Power Mowers, manufactured for General Mower Corporation, Buffalo, New York, are designed to deliver reliable, heavy-duty service with minimum of maintenance. Gemco engineers safeguard these performance specifications by using only quality materials, including Republic Nylok® Bolts and Nuts for critical assembly connections.

For example, in the Gemco Rotary Mower line, a particularly vital point is the assembly of blade to engine drive shaft. Use of a Republic Nylok Hex Head Cap Screw for this purpose assures a vibration- and shock-proof connection of maximum safety and strength. Moreover, the Nylok cap screw can be repeatedly removed and re-used to permit blade sharpening, reversal, or replacement—without loss of holding power.

The unique characteristics of Republic Nylok Bolts and Nuts suit them perfectly to many tough fastening problems. Permanent locking is provided by a nylon pellet imbedded in the fastener body which forces a tight, metal-to-metal lock between opposite mating threads. A positive grip is maintained wherever wrenching stops. Resiliency of pellet allows both adjustment and re-use.

It will pay you to explore these and other advantages of Republic Nylok Fasteners in relation to your assembly requirements. For details, contact your nearest Republic Office, or mail coupon.

ECONOMY, CORROSION-RESISTANCE, AND PAINT-HOLDING SPECIFICATIONS make Republic Electro Paintlok® Sheets ideal for this unusual product. Produced by the Self Sett Mouse Trap Company, Cleveland, Ohio, it is a fully automatic mouse trap. Mr. E. S. Coughanor, President, found Republic Electro Paintlok best by actual test for every requirement. If you want to "build a better mouse trap" in your product field, the features of Republic Electro Paintlok may work to your advantage. For details, mail coupon.



REPUBLIC COLD FINISHED ALLOY STEELS provide required reliability in gear components of this portable electric saw produced by the Black & Decker Manufacturing Company, Towson, Maryland. The strength and toughness of these steels enables Black & Decker gears to shrug off repeated shock and heavy loading—and come back for more. Republic Cold Finished Alloy Steels may provide the perfect answer to a tough application or production problem troubling you. Send coupon for further data.

MELTING POT AND FLYWHEEL SPECIFICATIONS for these castings produced by The Union Metal Manufacturing Company, Canton, Ohio, call for a pig iron with great machinability, density, and heat resistance characteristics. Over the years, the ideal answer to these requirements has been Republic Chateaugay Pig Iron. Exclusive with Republic, Chateaugay combines high carbon with unusually low phosphorus and is copper-free. Chateaugay's uniform distribution of chemical elements produces a dense grain structure which results in economical machining, plus excellent heat- and wear-resistance. For more information, mail coupon.

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PUT A BELLOWS AIR MOTOR ON YOUR COST CUTTING COMMITTEE AND FORGET THE HATCHET

Cost cutting programs that start out with a conference and end up with a hatchet may save a dollar today and cost ten tomorrow.

The cost cutting program that's worth its salt works on the assumption that the best way to save money is to produce in less time.

That's where we come in. The Bellows Air Motor and other Bellows "Controlled-Air-Power" Devices can shave costs faster than an electric shaver can shave a peach. They do it by making automatic (or semi-automatic) almost any type of repetitive operation involving push, pull, lift or turn motions—with the direct result of less labor cost per part produced.

These ingenious electrically (or mechanically) controlled, air-powered work units can be easily installed on your existing machinery, or in combination with such standard items as brackets, switches, etc., can be made into low cost special purpose machines. When one run is over they can be easily dismantled and re-assembled to do another job.

Yes, when it comes to cutting costs Bellows Air Motors are a production man's best friends. They put practical automation within easy reach of every plant in every industry.

Would you like to see a file of cost cutting ideas other companies have developed using Bellows Air Motors? Write Dept. ST-558, The Bellows Co., Akron 9, Ohio.

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DIVISION INTERNATIONAL BASIC ECONOMY CORPORATION

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1061-B

Welding reduces bridge costs

Calvert Iron Works, a leading bridge builder in the Southeast, reports reducing construction costs by using arc welding instead of riveting. New techniques and improved electrodes have made welding a practical and more economical means for fabrication.

New M&T "Murex" electrodes help make the difference. Calvert considers them best for their work, reducing welding time and practically eliminating X-ray rejects. Information about these and more than 1000 other types and sizes of Murex electrodes are given in catalog ESC, available on request.

Vinyl coating stands rough abuse

Products coated with Unichrome Plastisol can be dropped, bumped, exposed to acids, alkalies and other corrosives — all without damage to the finsh.

Unichrome Plastisols are vinyl compounds that form a tough, seamless, resilient, protective thick skin. Coating won't chip, crack, tear, peel, scuff or blister; can be applied to products of bakeable size by spray, dip and other methods. Send for Bulletin VP-3.

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To millions everywhere, SINGER stands for quality in sewing machines. One doesn't "toy" with such a reputation. So, daughter's machine gets many of the fine construction details found in mother's. Working parts for both get extra resistance to wear and corrosion with Unichrome SRHS® Chromium plating.

Literally hundreds of thousands of small parts are quality finished each day at minimum cost – a feat made feasible because of the self-regulated high speed operation of the bath; and the Unichrome Chromium Plating Barrel, the first successful production equipment of its type. Send for data on both.

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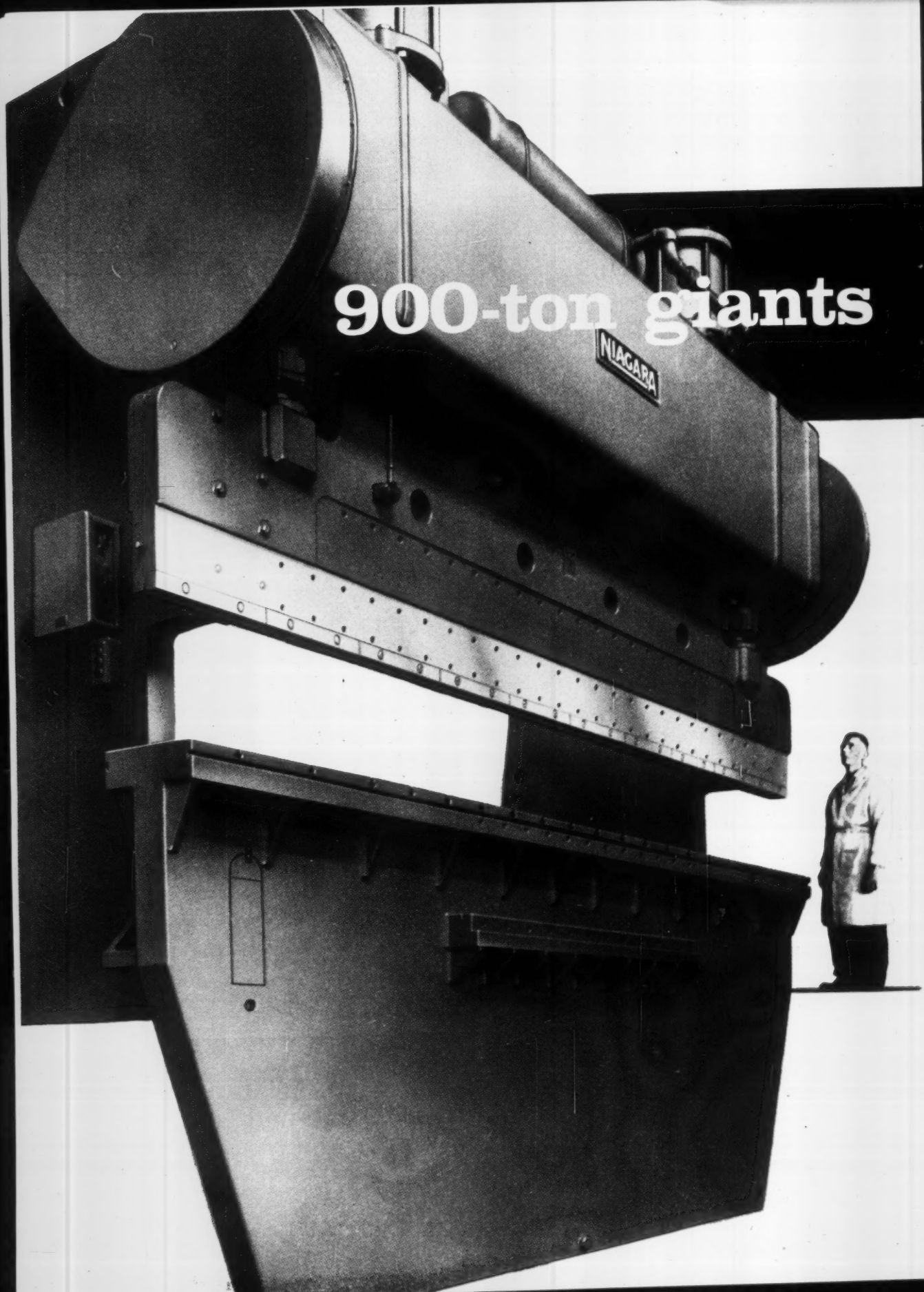
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NIAGARA

to 15-ton wo[illegible] horses

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Take your pick! 76 standard models! Niagara offers you any press brake you need . . . and the most modern features in whichever one you choose. Like its complete, companion line of power squaring shears, the Niagara line of press brakes is America's most advanced in engineering and performance.

Collectively, Niagara Press Brakes embody an unequalled array of features to boost production, simplify operation, improve quality and cut costs:

- **Power clutch** — electro pneumatic friction, low inertia, no adjustments needed.
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- **Wrap around crown** — modern, clean sweep styling.
- **Adjustable clutch torque capacity** controlled by varying air pressure to protect machine and dies against overload.
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- **Heat treated alloy adjusting screws** with ball joints and replaceable seats.
- **Centralized pressure lubrication** delivers oil to all main bearings, connection bearings and gibs.

Make a complete check of all the Niagara features that pay big dividends in press brake performance. Write for illustrated Bulletins 89 and 90 containing complete details and specifications on this great line of press brakes (bending capacities from 16 ga. to 1" and bed lengths from 4' to 30').

NIAGARA press brakes

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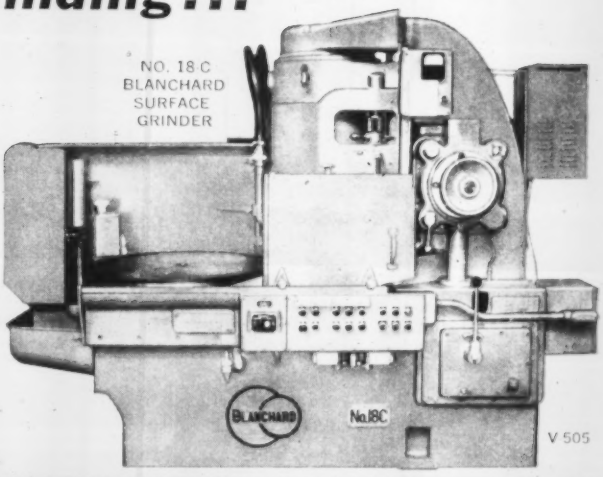
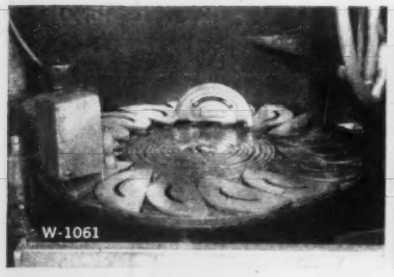
America's most complete line of presses, press brakes, shears, other machines and tools for plate and sheet metal work.

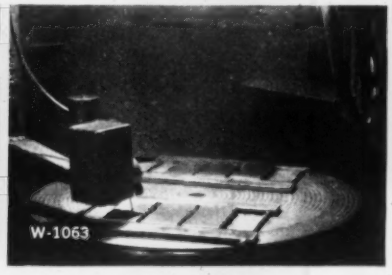
For better, easier grinding...

Whether you're "hogging" off stock from rough castings or precision grinding to a tolerance of ±.0005", you can do it better and easier with the Blanchard No. 18-C Surface Grinder. Once the work is set up, the automatic cycle handles every operation from start to finish. The operator is free to prepare the next load of work or to operate a second No. 18-C Grinder.





Cast Iron Plate. Blanchard ground at the rate of 30 pieces – 60 surfaces – per hour. Stock removal ⅛" each side.



Steel Bars. Blanchard ground at the rate of 48 pieces – 192 surfaces – per hour. Stock .040"-.045" from each side. Limits ±.001" square, flat and parallel.

Hot Rolled Steel Cams. One operator and one No. 18-C Blanchard produce 225 pieces – 450 surfaces – per hour. Stock removal 1/32" each side. Limits ±.001".

just push a button...

- Automatic size control to ±.0005"
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- A large part of operator's time available for
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  (c) Selecting correct wheel and preparing for next job
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All of these features give you *more efficiency at reduced costs!*

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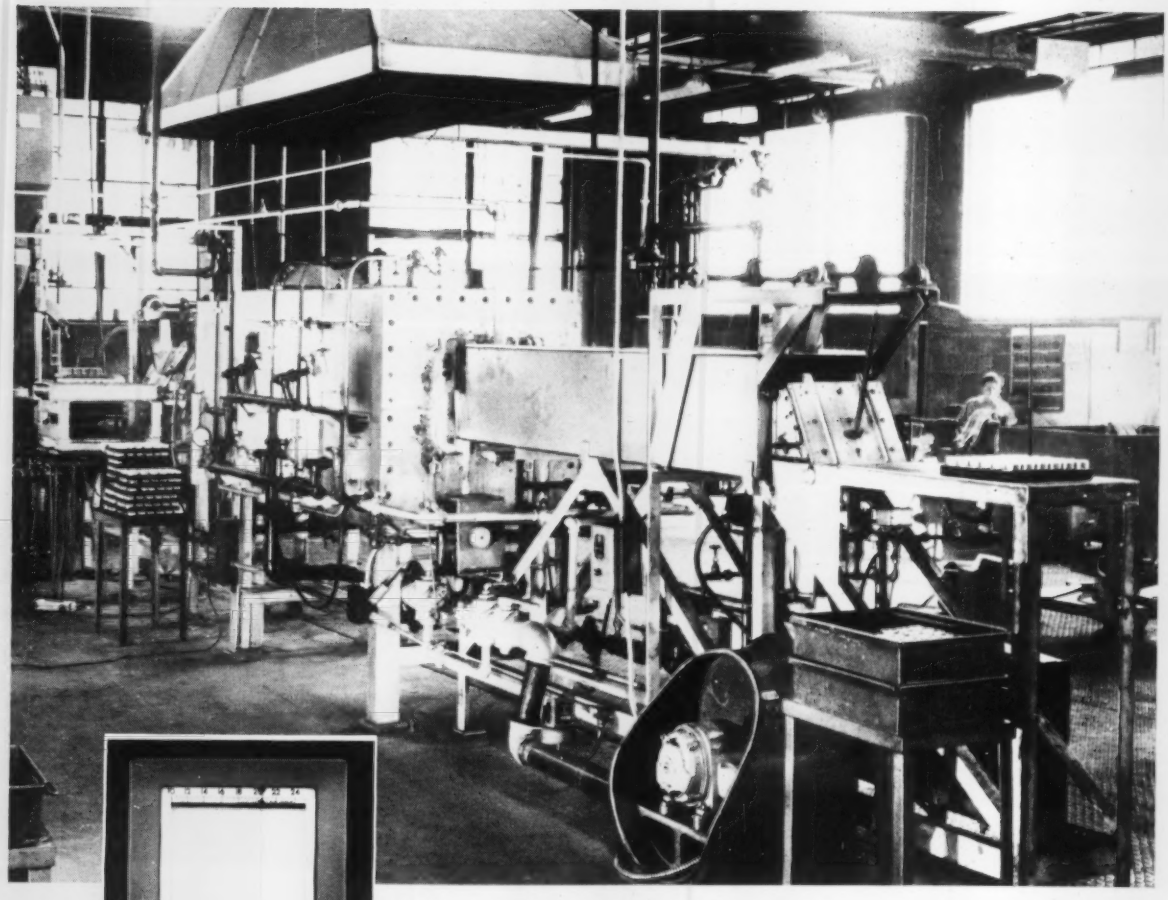

Speedomax® H . . . holds critical sintering temperatures in line at Burgess-Norton

Mix . . . press to a density between 6.2 and 6.6 gms cc . . . and sinter under good conditions for fifteen minutes at temperature! That's the formula for quality sintered steel parts at Burgess-Norton where many millions of such parts—ranging from small bushings to 4" diameter gears—are turned out a year. Most of these parts are used "as sintered." Some may be further hardened, carburized or plated.

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One of the most important determinations of the sintering process is temperature. If temperature is too high or too low, size and strength will be adversely affected. With Speedomax H 3-Action Position-Adjusting Type control, the sintering temperature is held well within critical limits . . . practically eliminating rejects due to improper sintering.

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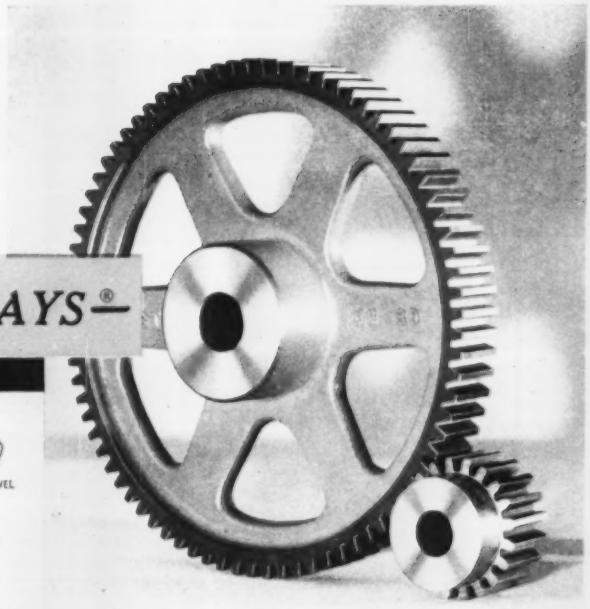

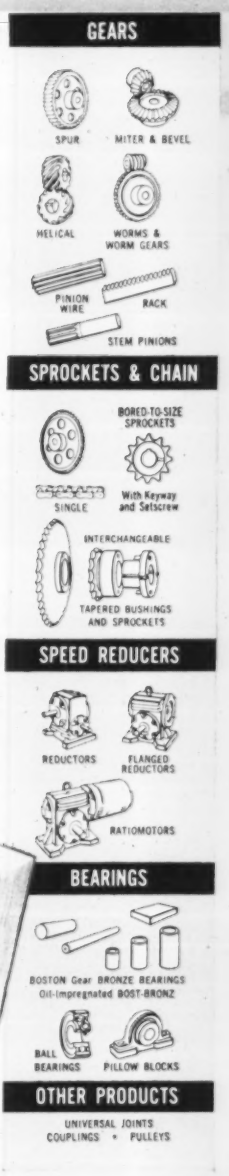

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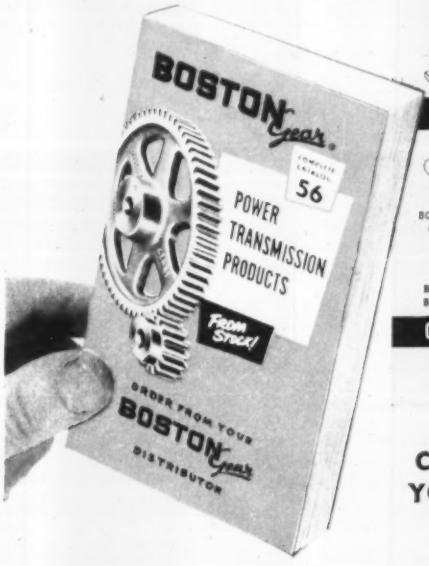

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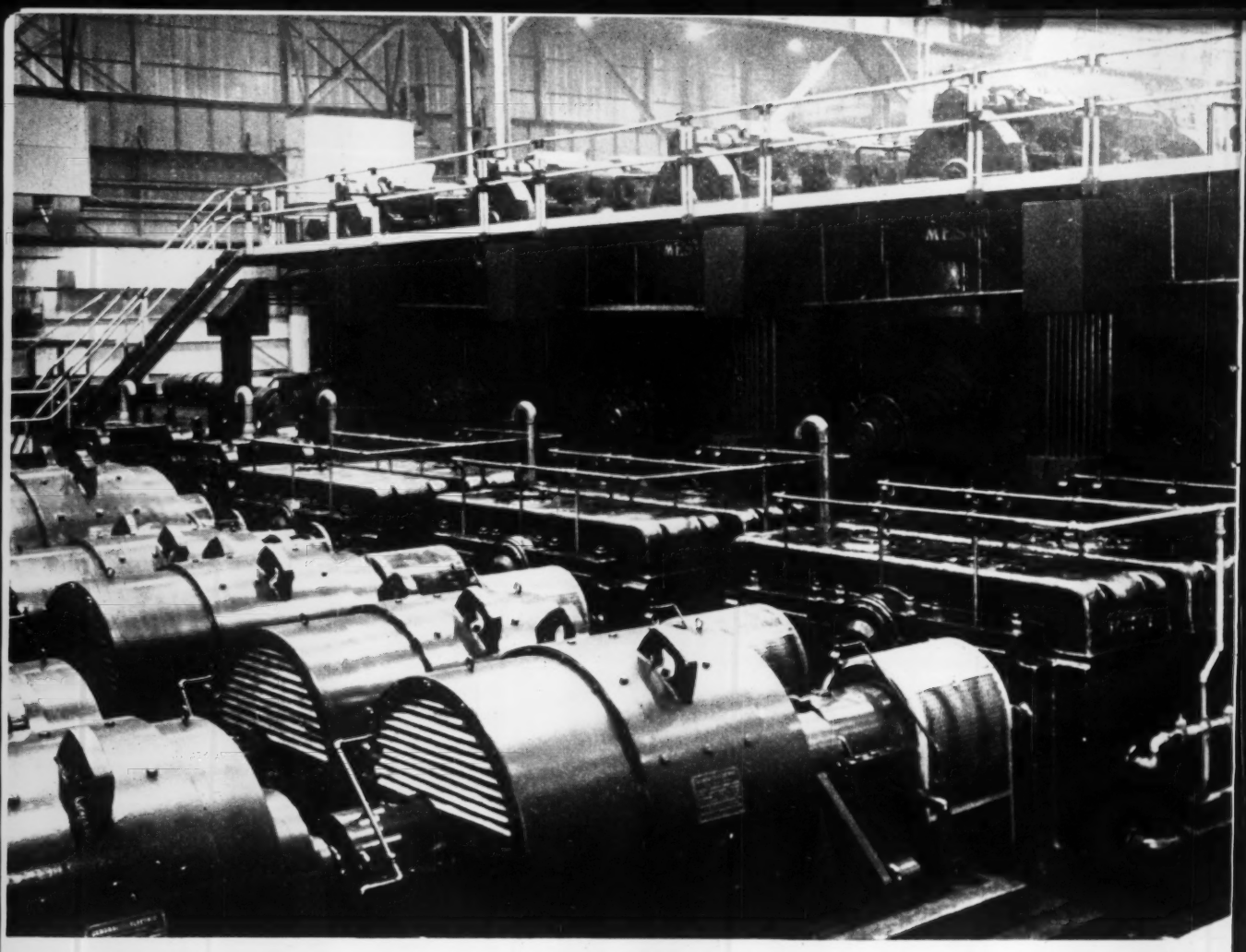

Additives in Texaco Meropa give heavy duty gears "Boundary Lubrication" for dependability under pressure

To fully protect your reduction gears, use the lubricant that *keeps on lubricating* even under extreme shock and continued heavy loads—Texaco Meropa Lubricant.

In addition to its extreme pressure properties which cushion the gear teeth, Texaco Meropa Lubricant contains special *polar* additives that cling to the metal and prevent the lubricating film from being squeezed out—thus providing the "boundary lubrication" so vital to the long life of heavy duty gears operating under heavy pressures.

The result is increased gear life, minimum wear, and reduced maintenance costs when you use Texaco Meropa Lubricant.

The full line of Texaco Meropa Lubricants exceeds all requirements of main drive units and other steel mill machinery. Your highly qualified Texaco Lubrication Engineer will be glad to suggest the right one for your operating conditions. Just call the nearest of the more than 2,000 Texaco Distributing Plants in the 48 States, or write The Texas Company, 135 East 42nd Street, New York 17, N. Y.

LUBRICATION IS A MAJOR FACTOR IN COST CONTROL

(PARTS, INVENTORY, PRODUCTION, DOWNTIME, MAINTENANCE)

Metalworking Outlook

May 12, 1958

Pressure on Prices

Evidence mounts that the recession is bottoming out, but there's still scant proof that we'll see a significant improvement in business before next September or October. The Purchasing Agents Association of Chicago notes "increased pressure on prices. While principal prices have been holding steady for the most part, discounts and concessions are becoming more common."

LP-Gas Gains Continue

The LP-gas industry is selling about 7 billion gallons annually to 10 million U. S. homes, farms, and businesses, it was revealed last week at the Liquefied Petroleum Gas Association meeting. The industry is winning new prestige for itself. In the face of only minor sales advances among petroleums generally, LP-gas rose 5 per cent in gallon sales last year.

Tool-Die Men Say Recession at Bottom

Tool and die shops predict the bottom of the recession has been reached, says Philip Marsilius, president, National Tool & Die Manufacturers' Association. Members selling to the electronics, farm implement, appliance, business machine, and defense industries are particularly optimistic. All regions except Detroit, New York, and Syracuse say their business is holding its own or improving. Missile and antimissile missile programs are helping Volkert Stampings Inc., Queens Village, N. Y. On the West Coast, tool and die makers report tooling is about to be ordered for the newest bomber in the Air Force, the chemically powered B-70. Oval Tool & Die Corp., Detroit, thinks the 1960 tooling program for the automotive industry may come earlier than December, 1958. The credit squeeze has eased considerably in the last month, shops report.

Europe's Prosperity Helps U. S.

Western Europe's continuing prosperity is helping many American firms—Kennecott Copper Corp., for example. The 1958 production of its Chilean mines is committed because of European demand. Industry-wide, the U. S. consumption of copper is at its lowest level since 1954. In 1958's first quarter, deliveries to domestic fabricators averaged 94,000 tons a month, compared with 112,000 tons a month in 1957's initial period. In this year's first three months, deliveries to foreign fabricators averaged 143,000 tons a month, compared with 135,000 tons monthly last year.

March Steel Pay Cost at Record $3.09

The average hourly payroll cost for wage earners of the iron and steel industry was $3.092 in March, compared with $3.088 in February and $2.834 in March last year, reports American Iron & Steel Institute. Pensions, social

Technical Outlook—Page 85 Market Outlook—Page 117

security, insurance, and SUBenefits averaged over 30 cents an hour in addition to the March figure of $3.092.

Auto Firms Present Solid Front

More proof of new solidarity among the auto companies in their bargaining with the United Auto Workers turned up last week. The presidents of Ford Motor Co. and General Motors Corp. appealed directly to their employees. GM's Harlow Curtice pointed out that a two-year extension of the present contract would mean an increase in wages through the improvement factor of at least 14 cents an hour over the period. It could be more if the cost of living climbs. Escalation has increased wages by 16 cents an hour during the term of the present agreement. In addition, fringes would be continued which now cost GM 56 cents for every hour worked.

Unfair Labor Charges Soar

"I protest" is the trend in labor relations today, judging from the number of unfair labor practice charges filed with the National Labor Relations Board. In the first quarter, 2760 cases were filed, an all-time high and 97 per cent over the number filed in the corresponding 1957 period. Cases filed against employers jumped 91 per cent and against unions 109 per cent.

Prefab Home Builders Gain

One out of every nine houses started in 1957 was factory built, says the Home Manufacturers Association. Prefabrication accounted for 11 per cent of the 872,700 new, single-family homes started in nonfarm areas last year. Shipments were down 1 per cent from 1956, compared with a 10 per cent drop in 1957's total starts. Ohio leads in prefab starts, followed by Illinois and Indiana.

Steelmen Go to Russia

A 19-man delegation of steel and iron ore mining executives from the U. S. will visit steel plants and mines in Russia from May 22 to June 21. A return visit by Soviet steel and ore technicians will be made to the U. S. later this year. Headed by Edward L. Ryerson, director and former chairman of Inland Steel Co., the American delegation will include Irwin H. Such, STEEL's editor-in-chief, who is now reporting on Western Europe (see Page 48).

Straws in the Wind

Federal Judge Edward Weinfeld will make his decision this summer on the Bethlehem Steel Corp.-Youngstown Sheet & Tube Co. merger case; the loser will appeal to the Supreme Court, so a final ruling is many months away . . . Republic Steel Corp. will spend about $60 million on expansion and improvement in the coming year . . . American Motors Corp. has increased Rambler production to 750 a day by hiring 400 more workers and going to six-day weeks in some of its plants.

MOTOR MAINTENANCE TIP:

Use Shovel Regularly

Without the vigorous use of a shovel, this Fairbanks-Morse 100 hp. motor would be buried under corrosive coal dust. Even so, as it drives a briquette press 16 hours a day, there is a cloud of coal dust coating motor windings and inhibiting normal cooling . . . steam and sulphur release sulphuric acid that can cause mechanical and electrical failure.

YET—After eight years in this rugged service the slip-ring motor in its dripproof frame has operated at peak efficiency without a single breakdown. Other F-M motors in this same difficult environment have operated more than 40,000 hours without breakdown—completely eliminating motor failures where such failure was commonplace before.

There is no better way to judge design advantages than to look at the long performance record of equipment in service. Your nearby Fairbanks-Morse Motor Specialists can show you many applications similar to your own.

When Performance Is the Measure,
F-M Motors Are the Standard.

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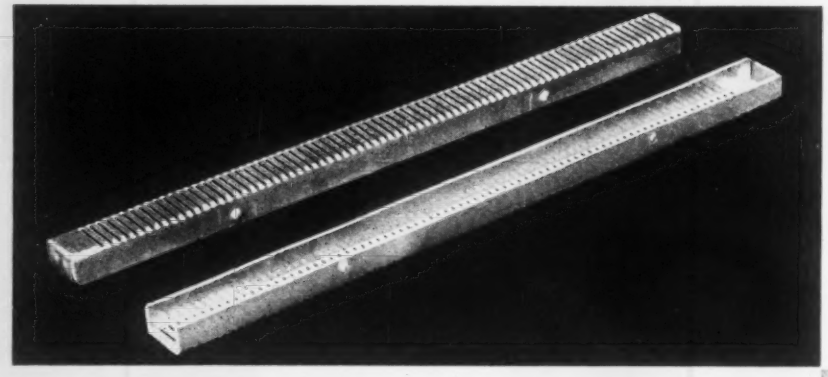
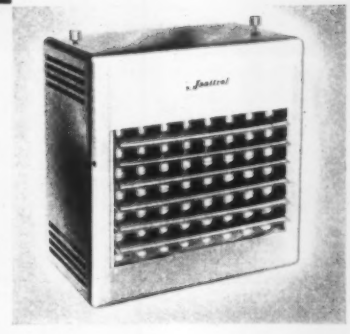
ELECTRIC MOTORS AND GENERATORS • DIESEL LOCOMOTIVES AND ENGINES • PUMPS • SCALES • RAIL CARS • HOME WATER SERVICE EQUIPMENT • MAGNETOS

How a redesign job with ARMCO ALUMINIZED STEEL Type 1 cut costs, added new sales points





Simple construction of this burner element, redesigned with Armco ALUMINIZED STEEL Type 1, means it can be more easily cleaned and the heater more easily serviced, both important sales advantages. Besides, Armco ALUMINIZED STEEL not only costs less than the material formerly used, but provides top-notch resistance to both heat and corrosion.

OFFERS COMBINATION OF ADVANTAGES

For many kinds of products, Armco ALUMINIZED STEEL Type 1 offers you advantages not obtainable with either steel or aluminum alone. Sheet steel hot-dip coated on both sides with aluminum, it gives you opportunities to step ahead of competition.

Resists Heat and Corrosion—ALUMINIZED STEEL Type 1 withstands temperatures to about 900 F without discoloration, up to 1250 F without destructive scaling. Its steel base provides strength and rigidity at high temperatures, its aluminum coating protects against corrosion.

Reflects Heat—Up to 900 F, Armco ALUMINIZED STEEL Type 1 reflects about 80% of incident radiant heat, directs heat where you want it for highest efficiency.

Fabricates Easily—ALUMINIZED STEEL Type 1 can be welded by standard methods. The aluminum coating adheres well in moderate drawing and forming operations. Design and fabricating problems are simplified.

Combining the advantages of two metals in one, ALUMINIZED STEEL Type 1 costs less than any other metal that can equal its performance. If your products require heat reflectivity, or resistance to heat and corrosion combined, use Armco ALUMINIZED STEEL Type 1 to cut costs and give them new selling advantages. It's available in sheets, coils, and welded tubing. For complete information, just fill out and mail the coupon.

Armco Steel Corporation
2068 Curtis Street, Middletown, Ohio

Send me information on
- ☐ Armco ALUMINIZED STEEL Type 1
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Armco Drainage & Metal Products, Inc. • The Armco International Corporation

Depreciation Tomorrow

Expendable Tooling

For more than fifty centuries, man could travel no faster than a horse could run—roughly 30 miles an hour.

Then came the locomotive, the automobile, and the airplane. In one century, man increased his speed from 30 to several hundred miles an hour. He had broken the oat barrier.

But it wasn't until after World War II that man really started to move. We broke the sound barrier, and today we calculate speed in Mach numbers rather than in miles per hour.

Similar progress in technology is evident in other fields.

But our economic and political thinking hasn't kept pace.

Take, for example, our depreciation regulations. They are better fitted for the days of the locomotive than for the age of jets and missiles. They say, for example, that a machine has a physically useful life of 20 years. The owner must write it off for tax purposes according to that rigid concept, even though the machine may become economically obsolete in three, five, or seven years.

Our thinking on depreciation has been standing still, while our technology charges ahead.

There is a growing need to consider production facilities as expendable tooling. They are useful only as long as they produce a product at the lowest possible cost, all factors considered. When it is possible to replace production equipment with more efficient facilities and obtain lower unit production costs, the original equipment is economically obsolete. That is true even though the original equipment may have many years of physical life remaining.

We suggest that economic obsolescence should be recognized in our depreciation laws, and the owner who wishes to replace economically obsolete equipment with more efficient facilities should be able to do so without tax penalties.

Everyone would gain—the consumer, the government, the worker, and the entrepreneur.

The consumer benefits through lower prices.

The government benefits from a greater tax base—from the equipment builder and his employees to the equipment user and his employees.

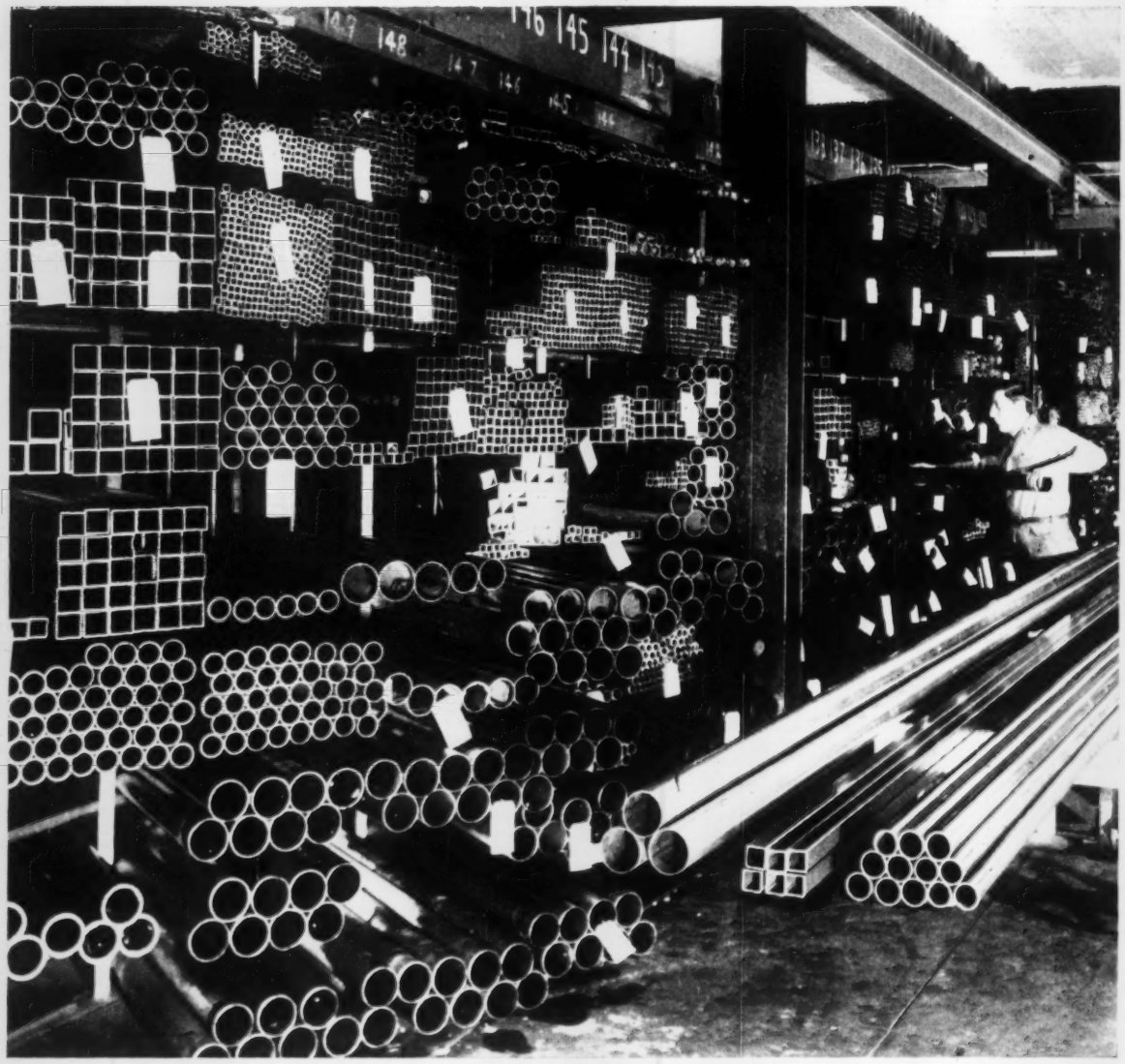
The worker's productivity gains.

The equipment user's costs are lower, and his market increases.

Let's keep our depreciation thinking in tune with our technology.

Walter J. Campbell

EDITOR



The type of tubing you need is here

It pays to analyze your tubing requirements with a Ryerson tubing specialist. He is well qualified to help you select the right tubing for your purpose from Ryerson's diversified stocks.

The Ryerson specialist knows tubing—knows what will work best and why. In many cases, he can recommend a type that will do a better job for you—perhaps a newer type that will save you money, either in first cost or in the cost of using it.

Ryerson carries the nation's largest stocks of steel tubing—all of certified quality—and uses the finest modern equipment to cut to your exact specifications. And Ryerson delivers fast—one tube or a thousand.

The Ryerson tubing specialist is as close as your telephone. Give him a call today.

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Tubing in stock: Seamless and welded mechanical tubing; fluid line, pump cylinder and structural tubing; stainless pipe and tubing; PVC pipe and fittings. Also, aluminum tubing in many plants.

JOSEPH T. RYERSON & SON, INC. PLANTS AT: NEW YORK • BOSTON • WALLINGFORD, CONN. • PHILADELPHIA • CHARLOTTE • CINCINNATI • CLEVELAND DETROIT • PITTSBURGH • BUFFALO • INDIANAPOLIS • CHICAGO • MILWAUKEE • ST. LOUIS • LOS ANGELES • SAN FRANCISCO • SPOKANE • SEATTLE

Will Steel Prices Rise?

The answer is yes, but the industry will probably hike them only enough to cover about half the increases in wages and other costs. Labor expenses to jump 20 to 25 cents an hour July 1, and the price boost is likely to follow immediately

The Case for Higher Prices

Production cutbacks and rising costs trimmed first quarter profits. When wage rates go up July 1, steelmakers will find it hard to pass the added costs along, harder still to absorb them.

Selected Steel Companies	Net Profit—Per Cent of Net Sales 1st Quarter 1958	Net Profit—Per Cent of Net Sales Year 1957
United States Steel Corp.	7.8	9.5
Bethlehem Steel Corp.	4.9	7.3
Republic Steel Corp.	4.5	6.9
Jones & Laughlin Steel Corp.	1.1	5.4
Youngstown Sheet & Tube Co.	3.1	6.2
National Steel Corp.	3.3	7.1
Armco Steel Corp.	6.3	7.1
Inland Steel Co.	5.3	7.6
Wheeling Steel Corp.	1.1	4.8
Sharon Steel Corp.	−1.2	2.7
McLouth Steel Corp.	1.6	5.2
Kaiser Steel Corp.	3.8	10.3
Detroit Steel Corp.	−2.3	3.6
Crucible Steel Co. of America	0.4	2.8
Pittsburgh Steel Co.	−3.0	2.3
Allegheny Ludlum Steel Corp.	1.4	4.4
Lukens Steel Co.	5.9	7.8
Lone Star Steel Co.	4.7	11.9
Jessop Steel Co.	3.3	4.4
AVERAGE	2.7	6.3

STEEL PRICES will probably be advanced $4 to $6 a ton when labor costs go up 20 to 25 cents an hour per worker on July 1, industry observers tell STEEL.

Here's the way they figure it: Steel officials have publicly announced that they would need a $9 or $10 a ton hike to cover added costs of labor and materials. Experience during recessions, say observers, indicates they'll hesitate to add anywhere near that amount to base prices, but they ought to be able to recover close to half of it.

Guideposts — When officials of U. S. Steel Corp. appeared before Senator Kefauver's subcommittee last August, they said that in making price adjustments they are guided by: 1. Changes in total costs—of which wage costs are an important element. 2. The desire to earn a fair return on investment. 3. The need for expansion funds. 4. Strong demand for steel which is reflected in the ability of customers to pay higher prices. 5. Changes in the prices of substitute products.

With wage costs escalating and first quarter profits on the wane, there's strong support for higher prices. But the other three guideposts weaken that support.

Misgivings—With ingot production at its lowest level in years, steelmakers have serious misgivings about a price hike. The move might alienate public opinion, put added pressures on customers' profits, and draw fire from Washington. It could result in the loss of business to competing metals and foreign mills.

"This isn't a time to raise prices," admits one steel executive, "but it isn't a time to go broke either. No one can say that he's going to absorb all these costs through increased efficiency. It just can't be done. If you don't raise your prices, you'll have to take smaller profits or be reconciled to greater losses."

It's Coming—In spite of their misgivings, steelmakers are getting set to boost prices. Says Avery C. Adams, president of Jones & Laughlin Steel Corp.: "During the first quarter, several steel companies were in red ink. Others failed to earn their dividends. Under such

How Wages and Prices Have Risen

Year	Increase in Total Payroll Cost	Increase in Pensions, Ins., SUB, Soc. Sec.	Increase in Total Employment Cost	Average Base Price Increase
1948	$0.116	——	$0.116	$9.34
1949	0.074	——	0.074	4.00
1950	0.043	0.112	0.155	5.50
1951	0.199	0.007	0.206	[2]
1952	0.203	−(0.002)	0.201	5.20
1953	0.119	0.006	0.125	4.00
1954	0.066	0.006	0.072	3.00
1955	0.176	0.034	0.210	7.35
1956	0.191	0.041	0.232	8.50
1957	0.217	0.045	0.262	6.00
1958	0.20[3]	0.05[3]	0.25[3]	????

[1]Includes only increases announced immediately following new wage contracts.
[2]Korean War price controls and court-contested steel strike delayed price action until 1952.
[3]Estimated by STEEL.
Sources: Wage information from American Iron & Steel Institute, annual averages per man per hour. Price increases estimated by STEEL.

conditions, an adequate price increase is as inevitable as day follows night."

Asked by STEEL to comment on the price outlook, George H. Humphrey, National Steel Corp.'s chairman, replied: "From the earning reports we've seen, it's apparent that the steel companies can't get along too well without raising prices to reflect costs."

Cost of Living—Because of an increase in the cost of living (as measured by the BLS consumer price index), steelmakers had to sweeten up wages 5 cents an hour on Jan. 1. Since then, the index has climbed. If it remains where it is now, another 3 cents must be paid on July 1. In figuring their costs as of July 1, steelmakers add the 8 cents to new contract costs which they estimate at 15 to 17 cents an hour. Result: An over-all increase of 23 to 25 cents an hour.

Answering the United Steelworkers claim that contract provisions will cost only 12 cents an hour, industry spokesmen say union calculations don't take into account the effect of an increase in wage rates on the cost of fringe benefits and welfare items such as pensions, social security, and insurance. And they don't reflect charges incurred when salaried employees are given comparable raises.

Price Formula—If a steelmaker's employment costs increase 25 cents an hour and 18 manhours are required to produce a ton of steel, a price hike of $4.50 a ton would offset higher labor charges. But the costs of goods and services purchased usually creep up an equivalent amount, steel economists insist. For that reason they'd want an increase of $9 a ton.

Mr. Adams estimates that his company's employment costs will be 20 cents an hour higher on July 1. Says he: "An offsetting price increase would be $10 a ton—$4 to cover our labor costs and $6 for purchased goods and services. Our books show that costs of the things we buy go up one and a half times as much as our own labor after a wage increase."

"Moderate" Increase—In recent years, much of an increase in costs has been passed on, but this time steelmen may have to absorb about half of it because of the soft market. They raised base prices an average $4 a ton in 1949 and $3 in 1954, both recession years. This time employment costs are slated for a much greater increase (see table), so a price hike of more than $4 is considered likely.

How To Do It—Speculating on the industry's price adjustment strategy, a steel executive opines: "In the long run, the companies would be smart to hold their fire on July 1 to see what's going to happen to the economy in general. If things get better, they can feed it on a bit at a time. They can take spots that need bolstering because of the impact of higher wages . . . then gradually extend increases to the rest of the list."

But most observers agree that strategically, a July 1 price adjustment—even a comparatively small one—is a must. By making it coincident with an increase in labor costs, steelmakers put the burden on labor.

Across the Board—Price increases will apply to all basic carbon grades. As one market analyst put it: "You can't disturb the overlapping relationships." Asked whether increases might be limited to the less profitable items, another steel executive replied: "We're either going to have a total attack on this problem, or we're not going to raise prices at all."

The markup for each product will depend on its cost of manufacture and the competition it faces. Such an approach gives rise to speculation about stainless. If steelmakers boost its price as much as they ought to (on the basis of manhours needed to produce it), what markets might be lost to aluminum? In the case of wire products, foreign competition will be a restraining influence. Price adjustments on specialty steels may be delayed until the economic climate improves.

• *An extra copy of this article, the first in a five-part series on metalworking's pricing prospects, is available until supply is exhausted. Write Editorial Service,* STEEL, *Penton Bldg., Cleveland 13, Ohio. In succeeding weeks, the editors will examine the outlook in components, equipment, construction, and consumer durables.*

Ceco Will Make Steel

Supplier of construction products will invest $11 million in electric arc furnaces and rolling facilities. Expected benefits: Higher earnings, new product lines

CECO STEEL PRODUCTS Corp. will join the ranks of the nation's steelmakers.

The Chicago firm is a major producer of structural and related steel products for the construction industry. In announcing the new $11-million steel producing facility, President Ned A. Ochiltree gives these reasons for the move:

1. Over-all company earnings should increase 50 per cent. Ceco earned about $3 million in both 1956 and 1957.

2. The mill will provide a protected source of supply for Ceco's bar needs. "Our business has been curtailed several times in the past 20 years during steel shortage periods," Mr. Ochiltree explains. "The mill will supply from a third to a half of the firm's steel needs."

3. Current financing conditions are favorable. Five life insurance firms are providing the $11 million at 5¼ per cent for 20 years. In addition, Ceco is increasing its outstanding bank loans by $1.6 million for working capital.

4. Construction and new equipment costs and delivery time make the move favorable. Rolling mill delivery time is about 18 months, compared with as much as three years only a year ago.

5. With its own roll shops and facilities, Ceco will be in a better position to get into new product lines.

Major Facilities—The mill will have an electric melt shop with two 18-ton electric arc furnaces. The rolling mill will have one 18 in., 3 high stand; one 14 in., 2 high stand; four 12 in., 2 high stands; and two 10 in., 2 high stands for finishing.

All production will be used by Ceco. Annual capacity of the mill will be 120,000 tons of billet-sized ingots. Products will include small structural shapes, rounds, reinforcing bars of all sizes, and special sections used in architectural applications.

Quick Transit—The mill will be in Lemont, Ill., a Chicago suburb on the Ship Canal.

Ceco operates 13 plants and three major product divisions:

The Structural Products Div. produces concrete reinforcing bars, steel joists, steel forms and shores, and roof decking.

The Mfg. Div. supplies steel and aluminum windows, curtain walls, metal screens, and steel doors.

The Merchant Trade Div. furnishes metal laths, galvanized roofing, standard steel buildings, roofing, and related items.

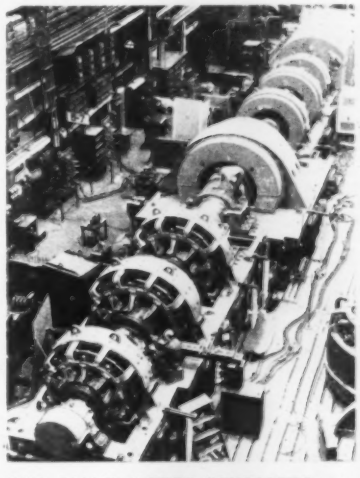
The mill will operate under the name of Lemont Mfg. Corp., a wholly owned subsidiary of Ceco. It will be operating by late 1959.

New Moly Plant Announced

Construction of a $1-million plant for production of molybdenum and molybdenum base alloys was announced by Arthur H. Bunker, chairman of American Metal Climax Inc. Initial production will be largely for guided missile components.

The Coldwater, Mich., plant will be owned and operated by Climax Molybdenum Co. of Michigan, a wholly owned subsidiary of American Metal Climax. It will occupy a one story building with 23,000 sq ft of floor space. Production is scheduled to begin in the third quarter.

Equipment will include two vacuum arc consumable electrode furnaces, developed especially for molybdenum production at the company's Detroit research laboratories. The plant will also have machining, forging, and other auxiliary facilities for the production of billets and bars. Production capacity will exceed 800,000 lb of castings annually. About 50 persons, many of them professional engineers and skilled technicians, will be employed.



THIS GIANT MOTOR-GENERATOR was built by Westinghouse Electric Corp. for U. S. Steel Corp.'s Gary (Ind.) Works. Rated at 13,500 kw, it will drive a twin-drive mill motor (12,000 hp) and an edger drive motor (4000 hp) to operate a slabbing mill. The unit is 86.5 ft long, weighs 315 tons.

Metal Plan Opposed

Opposition to the proposed multi-million dollar metal subsidy program has been growing since Secretary of the Interior Fred A. Seaton presented it to Congress on Apr. 28 (see STEEL, May 5, p. 55).

Fears that the administration's plan might ruin chances of getting higher lead and zinc duties (as recommended by the Tariff Commission) seem justified. Secretary Seaton told a news conference he would be against any tariff relief for the lead and zinc industry if Congress approves the new program. Secretary of State John Foster Dulles went farther and called the plan an alternative to new tariffs or quotas.

Opponents—Commenting on the government's action, Andrew Fletcher, president, St. Joseph Lead Co., maintains: "I deplore injection of the administration's new plan, particularly at this time. Action should be taken on the Tariff Commission's recommendations, especially since the industry followed the wishes of the administration to seek relief under the escape clause provision of the Reciprocal Trade Agreement Act."

T. E. Veltfort, managing director of the Copper & Brass Research Association, New York, said in a telegram to Secretary Seaton that his group opposed the proposal.

STEEL Goes to Europe

Dr. Erhard, minister of economic affairs, tells STEEL . . .

Germany Escapes Recession

THE RECESSION has *not* hit Western Germany and Dr. Ludwig Erhard is determined it won't. He predicts that his country will reach new heights of prosperity this year.

Germany's minister of economic affairs told STEEL that there is little relationship between his country and the U. S. as far as a recession is concerned.

Dr. Erhard is convinced that business troubles in the U. S. are temporary and largely psychological. As he analyzes it, the recession stems from shocks (such as Sputniks) to the U. S. economy.

He is equally convinced economic growth in Germany will continue in 1958 but at a slower pace. The country's 1957 gross national product rose to a record 190.5 billion marks (about $45.4 billion), based on 1954 prices. That was 4.6 per cent higher than the 1956 GNP.

Dr. Erhard told STEEL that he expects another 5 per cent increase this year in Germany's GNP (in terms of constant prices). It will push Germany's economy roughly a third higher than it was in 1954 and twice as high as it was in 1950.

Inflation—Dr. Erhard pursues a strong policy in dealing with industry and labor. He has succeeded in convincing them that wages and prices should be held down.

But he has not succeeded in completely avoiding inflation. Steelworkers recently asked for a 10 per cent wage increase. They got about 5 per cent.

Boom Period—Unlike the U. S., Germany is experiencing a boom in hard goods. Steel production climbed to a new high during the year's first quarter (6,901,826 tons of unfinished steel produced).

However, automobile production has not speeded up. It still takes four to six months to get delivery on a Volkswagen, two months on a Mercedes, and six weeks on a Taunus (Ford) or Opel (General Motors).

Trade Notes—Dr. Erhard expects Germany's foreign trade surplus to shrink slightly in 1958. Exports will be off a little since most German firms have big order backlogs. In rearming, however, Germany will have to purchase more weapons from the U. S. and Britain. Some will also be bought from Turkey. Light arms will be made at home.

The minister says a "lot of smoke" has been generated by new trade pacts with the USSR. He says that only 4 per cent of Germany's trade is with the Soviet Union and claims that the proportion will not grow much. (Back of the agreements, of course, is repatriation of Germans still held in Russia.)

Dr. Erhard says he firmly believes the common market involving his country, France, the Netherlands, Belgium, Luxembourg, and Italy can solve Europe's marketing problems. Admitting complications, such as monetary exchange rates, taxation, and shifts of labor between countries, the minister says the plan will eventually knit Western Europe into a cohesive economic unit.

Germany is also anxious to have the free trade zone arrangement set up to include additional European countries.

Warning — Dr. Erhard advises U. S. companies not to be hasty in setting up plants in common market countries. Don't take it for granted that protective measures will be instituted, he says. The common market can negotiate unilateral agreements with countries outside its orbit.

Industry reacts, wants . . .

Bold Action on Depreciation

STEEL's mail has been unusually heavy the last two weeks, largely because of a heavy reaction to its plea for depreciation reform as a means of fighting the recession (see Apr. 28 issue). STEEL's recommendations: Return to five-year amortization until June 30, 1959, while an industry-government commission has time to prepare for Congress' consideration a permanent, liberal depreciation system. Here's a sample of what some industrialists think of the proposals:

T. Lawrence Strimple, president, National Acme Co., Cleveland—"We are glad to join STEEL in the drive for depreciation reform. Product developments among the buyers of machine tools are rapidly changing in keeping with the technological developments of the day. Many buyers previously satisfied with paying for the machine in five years are now demanding their investment back in the first two or three years.

"The risk of obsolescence and early loss of usefulness would be greatly reduced by more liberal depreciation."

Joseph L. Block, president, Inland Steel Co., Chicago—"You are to be commended for launching a program calling national attention to the deficiencies in our present laws applicable to depreciation.

"It seems to me that what is needed is an appropriate law to permit depreciation on a basis of replacement costs. Well thought out suggestions along these lines have been presented to Congress. This concept is in line with the LIFO principle and is just and equitable. There is no valid reason for procrastination (in enacting reform)."

Merrick Lewis, president, Alliance Machine Co., Alliance, Ohio—"Ever since the American revolution, we have plowed back a good portion of what has been produced in our top agricultural areas. So, over the course of these many years, these acres produce endlessly and productively. This lesson from nature has application to economic laws, as well as the natural laws.

"Originally, with a small tax on income, industry could continue to plow in for new tools, even more than allowed in depreciation. The thinking on depreciation stood still, and still does, except for the short accelerated amortization periods.

"We need a plan whereby new facilities can be charged taxwise at the value they represent in replacing other facilities, similar to the LIFO accounting practice which has been widely approved.

"Also, the whole depreciation picture needs to be reviewed. The simplest approach would be for the Internal Revenue Service to revise its estimates of useful lives to encompass the economic life rather than the physical life. The new processes obsolete equipment much earlier than the measure of the physical life.

"The cost of the tools of industry per employee has so increased that no longer do current rates of depreciation provide funds for their replacement. This, coupled with the high corporate tax rate, makes the raising of equity capital difficult."

Show Stresses Cost Cutting

Tooling for Competition was theme of ASTE meeting and show. Machine tools and machining were in the spotlight. Five exhibitors showed numerical control systems

NEARLY 500 exhibitors crowded into Philadelphia's huge Convention Center last week to show their wares and prove that they could help boost their customers' production efficiency. The occasion: The American Society of Tool Engineers' 26th annual meeting and tool show which opened May 1.

The Exhibits — Products ranged from a complete numerical control machining system in operation to a hand calculator for adding and subtracting fractions. ASTE officials guesstimated that the equipment had a net worth of more than $10 million.

Machining got a lot of attention. Some 20 exhibitors showed machine tools made abroad. Most were standard types—lathes, grinders, milling machines, and drilling machines. A few, like one for cutting huge gears, were specials.

Other machining exhibits featured accessories (including automatic cycle controls for standard machines), cutting tools, gages, and tool control systems. Five companies showed numerical control systems.

Reports — ASTE-sponsored technical conferences were an added attraction. More than 100 papers were presented. They covered such subjects as automation, plastic tooling, steel forgings and extrusions, nuclear engineering, cutting tools and metal cutting, numerical machine control, and new production techniques.

A two-day metal cutting seminar was designed to disseminate up-to-date machining knowhow. This session, and others, turned up answers to industry's problem jobs.

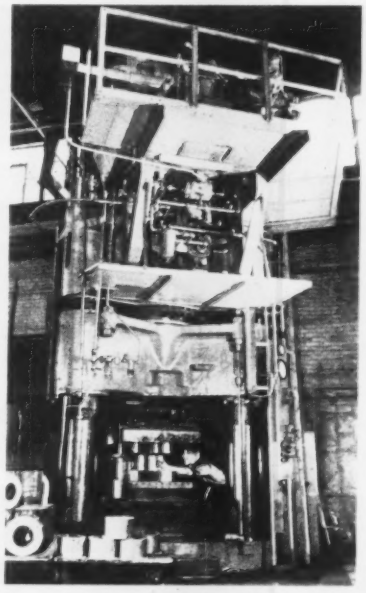
Automation—Standard and numerical control concepts for automation were evaluated. Discussing potential applications for numerical control, L. S. Peck, applications engineer, Autonetics, a division of North American Aviation Inc., Los Angeles, singled out the small lot, job shop operations where flexibility, precision, and short leadtimes are musts.

He thinks several applications for positioning or continuous control are suspect: Jig boring, punching, drilling, spotwelding, profile milling, and contour turning.

Citing the benefits of numerical control, D. H. Bingham Jr. and R. G. Chamberlain, from Giddings & Lewis Machine Tool Co., Fond du Lac, Wis., told the tool engineers that about 1850 different aircraft spar mill templates were produced at 40 per cent the cost of the next competitive bid. The time required was about one-fourth that of conventional manufacture. One templatemaker using numerical control claims his manufacturing errors are reduced about 75 per cent.

Ceramics—Reporting on his high speed machinability tests, H. J. Siekmann, manager of applied mechanics engineering, Metallurgical Products Dept., General Electric Co., Detroit, said high negative rakes on ceramic cutting tools give better tool life and more reliable cutting performance. "We have made cutting tests on hard steels with negative rakes as high as 30 degrees with optimum results."

Sign of Times—Business conditions held attendance to about 25,000, but exhibitors showed little concern. "We've had more people in our booth in previous shows," commented one, "but we've never had more potential buyers. The men we talk to are qualified to appraise, even buy. They are the people we're trying to reach."



POWDER METAL PRESS dwarfs its operator at Chrysler Corp.'s Amplex Div., Detroit. Capable of exerting 6 million psi, it can make parts up to 30 in. in diameter

Tools for Schools

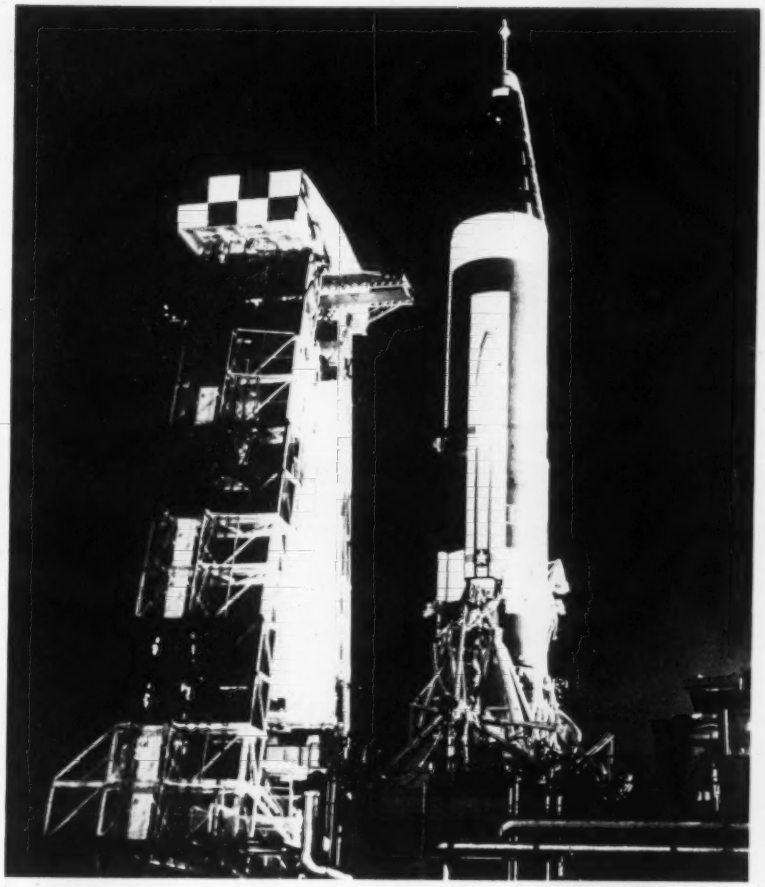
No letup in Uncle Sam's giveaway of surplus machine tools is seen in next two or three years

THE DONATION of government surplus machine tools to schools is being speeded up by the Department of Health, Education & Welfare. Survey forms are being mailed to regional offices to determine how many tools each state can absorb in the next year. HEW heads the program, with advice from the Business & Defense Services Administration.

Available—Survey forms indicate what tools will be declared surplus. Included are: Boring mills, broaching and drilling machines, grinders, lathes, shapers (up to 30 in. stroke), planers and planer mills, gear cutters, milling machines, mechanical and hydraulic presses, punches, shears, folders, forging tools, small riveters, and cutting tools. Special equipment includes welding machines, heat treating furnaces, forges, Rockwell and Brinell testers, and tool attachments.

HEW wants forms returned by June 1. Schools will request tools through their state surplus property offices (established after World War II).

No Letup—W. A. Farrell, California's chief surplus property officer, said after a visit to Washington: "There will be no let up in disposal for at least two or three years. December, 1957, was the biggest month in the history of the surplus disposal program."



American Iron & Steel Institute

Stainless Protects Atlas

Skin and propellent tanks take advantage of its strength, lightness, and resistance to corrosion and high temperatures. Producers see more space age applications ahead

AMERICA'S FIRST intercontinental ballistic missile, the Atlas, wears a stainless skin, reports Convair Div. of General Dynamics Corp., San Diego, Calif., which makes the airframe and assembles the missile.

Stainless also forms the walls of propellent tanks, which are nearly as long as the missile.

Selection — Extreme tensile strength and resistance to high temperatures and corrosion won stainless the job, reports the Committee of Stainless Steel Producers, American Iron & Steel Institute, New York. "The strength to weight ratio of stainless allows the designer to achieve lightness with ample strength. Weight savings in the airframe structure of a missile enable the same powerplant to propel the vehicle farther or provide a heavier 'payload' potential," says the AISI.

Producers of stainless regard Convair's report as evidence of growing use of the metal in missiles and rockets. They foresee greater demand as speed and temperature requirements get stiffer. The metal is needed for propellent tanks because fuels are corrosive.

More Applications—The Army's Explorer has a 13-ounce nose cone made of Type 430 stainless. It also protects the last stage of the Far-side rocket.

Missile Metal

Aluminum gaining in this field. Maker stresses comparative cost, weight, and availability

ALUMINUM is used for structural purposes in 80 per cent of missiles whose compositions are disclosed, reports Kaiser Aluminum & Chemical Corp., Oakland, Calif.

With this statement, claims for the light metal are reaffirmed in an industry certain to be a continued scene of lively competition between metals. (Not to be outdone, stainless steel's adherents have their say in columns to the left.) It's anybody's guess how the struggle for applications will end. Kaiser admits use of aluminum can't be measured accurately because most missile programs are in the development stage.

Ample—Kaiser says missilemakers can use the light metal in virtually every part from nose cone to propellent and in most components in the support systems. The 22,600-lb Navy Vanguard uses about 3700 lb of aluminum; the Army's Redstone, 4500 lb; the Air Force's Snark, 3900 lb.

More aluminum is found in newer models of missiles, Kaiser reports. Example: The Navy's Sparrow I contained 95 lb; Sparrow III has 260 lb.

A Kaiser study discounts effects of future high operational temperature requirements: "Because such temperatures are beyond capabilities of any metals, it seems more likely that a solution will be found by redesign of flight paths and skin-cooling devices."

What's Ahead—Aluminum's use can soar to "massive proportions" when an artillery-type missile becomes a standard weapon, Kaiser predicts. One artillery missile, the Army's LaCrosse, contains 250 lb of aluminum.

Kaiser thinks that increased use in future missile programs will stem from a trend to lowering nonpayload weight as well as cost and availability of aluminum in comparison with other metals.

Johnson Leads Tax Cut Switch

SEN. LYNDON JOHNSON (D., Tex.) would rather be a representative these days. As Democratic spokesman, he'd like to talk up a Democrat sponsored tax cut bill, but it wouldn't be proper. Tax measures originate in the House Ways & Means Committee.

Senator Johnson has gone about as far as he can without hurting anyone's feelings: "I think the time is coming when not only the House but the Senate will have to assume responsibility for making a (tax cut) decision." He singled out the "burden of heavy excise taxes." The senator believes now that public works spending isn't enough to pull the nation out of the recession.

With the 52 per cent corporate tax rate scheduled to drop to 47 per cent on June 30, it looks like Ways & Means will present its tax program before June 1 to allow time for hearings and debate.

Administration Program Coming Soon?

Republican sources close to the Treasury Department report President Eisenhower will announce his tax cut program this week or next. He hopes, they say, to beat the Democrats to the punch. It's likely he will go along with reduced excise taxes on autos (from 10 per cent to 7 per cent), but ask extension of the present corporate rate.

As help to industry, aimed primarily at small businessmen, vote-hungry Republicans hope Ike will O.K. Sen. Homer Capehart's (R., Ind.) proposal to revise Bulletin F. The senator would probably have preferred to push a revised fast tax writeoff plan. But he knew it would have had no chance this year. And don't conclude that a tax cut is a sure thing. Many House members are still mightily concerned about a deficit in fiscal 1959 and 1960.

The Bulletin F. maneuver is designed to avoid looking too much like a "big business" tax cut in a Republican administration and could meet the approval of the Ways & Means Committee. Passage by the entire House is something else.

A cut in personal and corporate taxes, if sponsored by the Democrats, stands a good chance of Presidential veto.

Labor Gains Certain in Fall Election

A leading businessmen's group expects Republicans to lose 40 to 60 seats in the House this fall. With about 170 representatives already committed to pro-union policies, it thinks union power would be extended past the 200 vote mark in the House. In the Senate, half the seats are controlled by prounion elements, the group estimates.

Conscious of the growing political influence of labor, a new group, the Committee on State Sovereignty in Labor Relations, set up headquarters in Washington last week. Robert Love, Kansas manufacturer who heads the group, says 216 House members and 45 Senate members "voted the way labor wanted most of the time last year."

Steelworker Productivity Drops

The Joint Economic Committee notes that in 1957 basic steel output per production worker manhour dropped to 126.7 (1947-49 equals 100) from 128.1 in 1956 and 127.2 in 1955. Real average hourly earnings continued to climb last year, as did production worker payrolls per unit of output.

To Stimulate Genius

The productivity of the nation's inventors invited comment from Sen. Leverett Saltonstall (R., Mass.) recently. He introduced a bill to allow Defense Department "rewards" for significant contributions to national defense.

The plan is to bypass regular patent channels (they sometimes delay the inventor's chances to offer it to Defense) and to avoid contract arrangements with Defense making the invention available to anyone, without proper remuneration to the inventor.

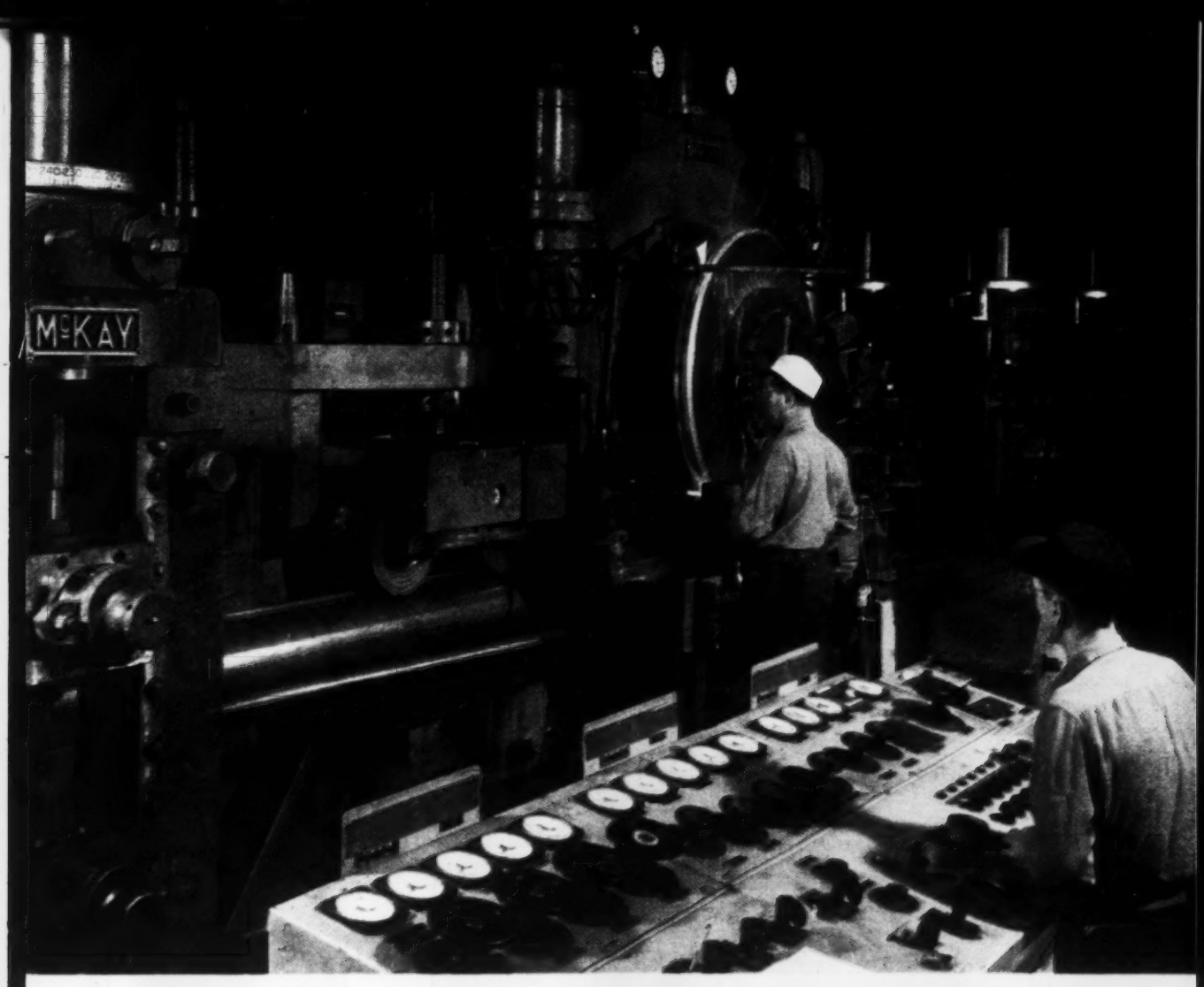
New Helium Plants Scheduled

To save 32 billion cu ft of helium, the Interior Department wants private industry to build 12 recovery plants at a cost of about $224 million. They would extract helium from natural gas now being used in the Midwest by 15 million domestic and commercial consumers. The helium content doesn't burn and adds no value to the gas consumed.

Sec. Fred Seaton will submit a detailed program to Congress soon. If private interests don't come forward to build the plants, he says, Interior will have to do the job itself.

Mineral Notes

Mr. Seaton wants Ike to turn down the request for lead and zinc quotas . . . Sen. Pat McNamara (D., Mich.) wants to subsidize iron ore mine owners . . . Sen. John Williams (R., Del.) led the fight against the buying program for asbestos and fluorspar and won easily last weak.



Advanced Design McKay Mill Sets Pipe Production Records At J&L

New era in pipe production comes of age as McKay incorporates oil cooled transformer, continuous visual recording of weld pressure and induction seam annealing, automatic control of weld speed and heat and synchronization of cut-off in large resistance weld pipe mill.

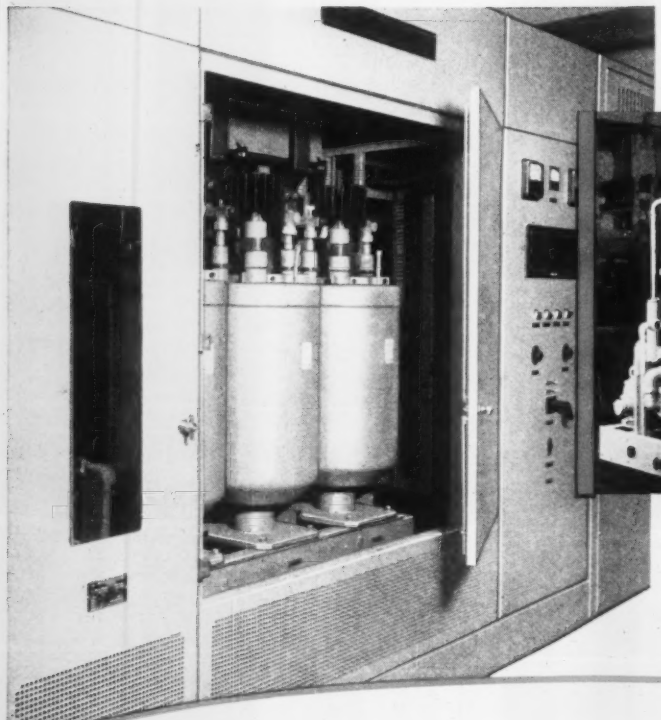
RECENTLY Jones & Laughlin Steel Corporation set into operation their new McKay Pipe Mill capable of producing 150 feet of 12¾" OD electricweld pipe every minute. More important than the speed, according to J & L officials, is the quality of the product. McKay's forced oil cooled transformer assures more pipe per kilowatt hour. It is the first 2400V transformer designed for continuous operation at frequencies up to 180 cycles.

Hydraulic load cells measure forging and electrode pressures at the weld zone. Weld speed and heat are controlled with precision to assure the most uniform welds possible at any speed with no readjustment necessary. Continuous seam annealing assures uniform ductility of pipe, and for the first time a synchronized cut-off has been successfully adapted to a large mill. The mill has several other advanced innovations applied to a line this size for the first time. To get all the facts talk with a McKay engineer soon.

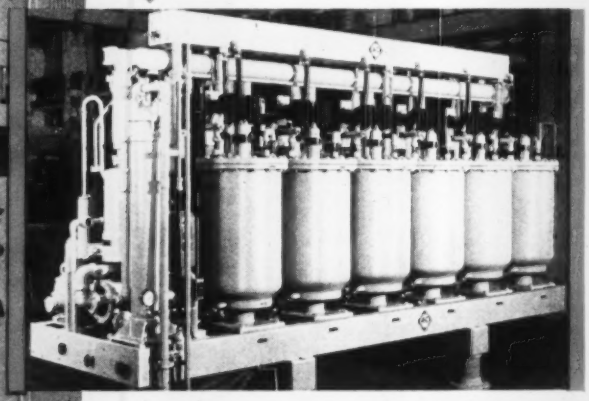
McK

THE McKAY MACHINE COMPANY
YOUNGSTOWN, OHIO

No. 363



Open pumped tube unit permits easy access for inspection. Easy to recondition in field.



Enclosed sealed tube unit conserves space, cuts installation costs, eliminates need for vacuum pumping system.

ALLIS-CHALMERS

Mercury Arc Rectifiers

Pumped or Sealed? Open or Enclosed?

Here's how Allis-Chalmers can help you choose a rectifier for your job—

BOTH sealed and pump-evacuated tube rectifiers offer distinct advantages, depending upon the application. Whether your rectifier should be open or enclosed construction also depends on the application. Since Allis-Chalmers offers you a choice of sealed or pumped tubes in either open or enclosed construction, you get an unbiased recommendation, based on a study of your needs, and not on commercial expediency. And you can be sure of unsurpassed reliability and ease of operation, as proved in hundreds of Allis-Chalmers installations.

Only Allis-Chalmers Excitron Rectifiers give you all these important advantages—

- **Fixed excitation anode** does not contact mercury — is independent of level, turbulence or impurities.
- **Continuous excitation** eliminates need for reignition — pilot arc always present.
- **Grid phase control** located in clean region near anode where ion density is lowest.
- **Internal cooling system** provides high heat transfer with seamless tube coil.
- **Arc-over-free tube** eliminates arc-over danger by insulating entire arc path.
- **Enameled anode seals** provide high strength, trouble-free seal.

For detailed information on mercury arc rectifiers contact your nearest A-C office, or write Allis-Chalmers, Industrial Equipment Division, Milwaukee 1, Wisconsin, for bulletin 12B8494.

ALLIS-CHALMERS

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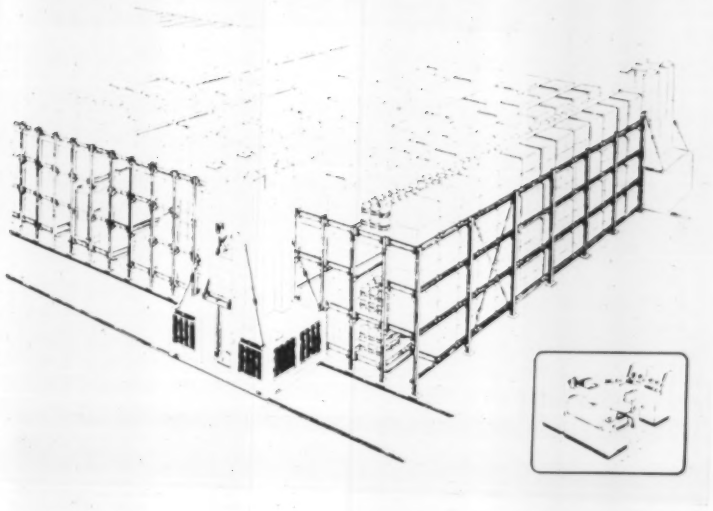


How Pesco's automatic warehouse looks. Inset: The remote control station

Warehouse Capacity Doubled

Pesco Products diversifies into material handling. Its fully automatic warehouse can be operated by punch card or tape programming to tie in with inventory control

HOW CAN YOU double capacity of a warehouse without changing its size? Pesco Products Div., Borg-Warner Corp., has an answer: Automatic warehousing.

The Bedford, Ohio, company set up an Automatic Warehousing Branch to develop a system to move palletized goods in or out of storage at the touch of a button. Pesco will also design, develop, and install custom material handling systems of other types. A conveyor system for handling jet engines during production and overhaul is already in production.

Warehouse — Major components of the automatic warehouse:

1. Wheeled pallet carriers—Each is a lightweight, four wheeled dolly slightly larger than the pallet. The wheels are set so the carrier will roll only on rails, remain stationary on the floor.

2. Modular racking system—Steel uprights support banks of rails (up to four high) on which the pallet carriers ride. The rails are sloped so pallets roll from the load side to the unload side of the rack. Rails accommodate up to 15 pallets. Rack height and distance between uprights are determined by pallet size.

3. Automatic loading machines—Pallets are put on racks by a rail-mounted vehicle resembling a side-loading lift truck. Pallets are unloaded by an identical vehicle. Both are remotely controlled.

4. Remote control console—The operator of the system codes movements of loading and unloading machines by magnetic tape programming. Various programming systems can be devised to suit the user's inventory control and stock picking needs.

Advantages—The system doubles warehouse capacity by eliminating all but two access aisles and permitting four-high stacking of pallet loads regardless of weight or contour. Lighting and heating can be held to a minimum. Weight bearing floors are needed only in the two aisles.

If desired, the rack uprights can support the roof of the building, lowering construction costs. However, this decreases easy mobility achieved by bolting racks together. Working with one loader and one unloader, the warehouse can operate on a 2-minute cycle—30 pallets in and 30 pallets out per hour.

Cost—Pesco engineers estimate cost of an automatic warehouse (with 100,000 sq ft of storage capacity) to be $100,000, about $19,000 more than a conventional warehouse. They say savings in manpower, equipment, and breakage should amortize this difference quickly. The system will be sold through manufacturers' agents.

The modular storage part of the system can also be operated like an ordinary warehouse using fork trucks or overhead cranes for loading or unloading. Fully automatic units could be added later.

Engine Assembly — A growing need for its jet engine assembly conveyor is seen by Pesco as commercial airlines switch to jets. The conveyor is closely related to Pesco's primary business, aircraft components.

Both ideas originated at the Aircraft Engine Div., Ford Motor Co. Pesco President R. A. Powley and D. Wayne Zimmerman, manager of the new branch, are Ford Aircraft alumni. Mr. Zimmerman worked closely with both developments at Ford. Pesco acquired the products when Ford decided against entering the material handling field.

Steps Up Enforcement

The government is bearing down harder on violators of laws controlling competition.

The Federal Trade Commission set a postwar record in 1957 by issuing 324 complaints and 213 cease and desist orders. Those totals topped the 1956 figures by 46 per cent and 13 per cent.

A five-year high of 56 cases was filed with the Antitrust Division of the Department of Justice last year. Fines levied against violators reached a high of $941,525.

Partmakers Hopeful

April sales up for bellwether screw products industry, but first quarter levels are low

APRIL may have provided the push needed to turn up the sales curve for screw machine products.

That feeling was general at the 25th anniversary meeting of the National Screw Machine Products Association at Chicago.

Industry sales in 1957 were about $485 million, says Orrin B. Werntz, NSMPA's executive vice president. First quarter sales this year were nearly 30 per cent back of '57 figures. Even if April increases augur an uptrend, industry sales for the year will be only about $400 million.

Increases — Last month's gains were made primarily by companies serving electronic, truck, farm equipment, and leisure-time product industries. Although not all screw product people felt the upturn, most executives contacted by STEEL think the worst is over.

Since its activity usually presages that of major manufacturers, the screw machine products industry is a good one to watch. The Chicago meeting also provided a check on how metalworking's small businesses are faring. Most plants represented employ fewer than 100.

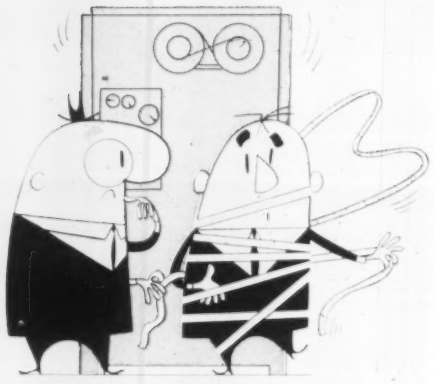
Troubles — "Next to declining sales, the price squeeze on available business is causing the most headaches," says C. J. Baumgart, president, Screw Machine Engineering Co. Inc., and new NSMPA president.

Here's how some are combating the pressure:

Missiles—One of the more active partmakers is Walter Precision Co., Chicago. President August Schlotfeldt reports about 30 per cent of his business is going to missiles.

New Salesmen, Estimators — Charles L. Kerr, president, Kerr-Lakeside Industries Inc., Cleveland: "We're putting on new people to boost volume and to try to control costs more closely."

New Products—Fred H. Wardle, executive vice president, F. H. Smith Mfg. Co., Chicago, says his firm makes a line of hose nozzles to help take in the slack. Another midwest company started producing brass lamp parts.



If you're caught in a web of confusion, study can tell you . . .

Do You Need Computers?

TWO COMPUTERS save Cutler-Hammer Inc., Milwaukee, $20,000 yearly. Production costs have been reduced and 150 payroll operations reduced to 40.

A RAILROAD prepares 90,000 dividend checks with computers in less than 30 minutes.

A CONTRACTOR cut engineering manhours in half by renting a computer on an hourly basis to make time-consuming calculations required for bridge structuring.

PURCHASE of a costly computer was avoided by a company that bought a three-axis milling machine with an integrated control unit. Kearney & Trecker Corp., Milwaukee, will make control tapes for buyers of its machines, the buyer paying only for the cost of making the tapes.

Computers are not necessary to every business, but they're being used more and more. A spokesman for a major computer firm puts it this way: "A computer is a tool and like any other can be used effectively or wastefully. It can't think. It can only follow human direction."

Types—There are basically two kinds in use, analog and digital. The digital computer counts; the analog computer measures.

With the digital type, the problem is expressed as an equation. The computer counts electrical impulses standing for the appropriate numbers and solves it.

The analog type solves problems by translating conditions (such as flow, temperature, or pressure) into electrical quantities. It calculates such things as vibrations, trajectories, and electrical responses.

Capabilities — Computers can solve any problem that can be answered either yes or no, or with a series of such answers.

They can be useful for such functions as payrolls, billing, cost records, production control, and engineering problems.

Decision—It's easy to talk about computers. It's harder to decide whether they are necessary or desirable for your company.

Here's what to do to find out: Set up a study team composed of your own people. Incorporate both engineers and office personnel who know your system from all angles. Give the team time to make a thorough study. Make sure you have a problem and that you know exactly what it is before you consider investing in equipment.

Once the problem is defined, ask yourself these questions: How many times will this job have to be done? How long does it take and how much does it cost under the present system? What advantages, if any, will accrue from having computers do the job people are now doing?

Consider also the advisability of having your problem worked out at a computer center. They can be found in any large city. Nearly all major computer firms run them and any type computer can be rented and used at the center on an hourly basis. If your problem is a nonrecurring or infrequent one, this could be your answer.

If you're faced with a flood of data, however, that shows no signs of abating, you may be in the market for permanent installations.

Help—Call one of the computer makers. Any of the large concerns will send a group of specialists to your plant to work with your study team.

Your team knows the problem. The specialists know computers. They can analyze the problem in terms of available equipment and tell you what they think you need, how much it will cost, and what its advantages are.

Be Cautious—Don't be oversold. Make sure the advantages listed are real. Compare your present system and the proposed electronic system in terms of time and money. Computers should be considered only if they will save you one, the other, or both.

Costs—Purchase prices of general purpose computers range from about $150,000 to more than $2 million; special purpose, from $45,000 to $90,000. More than twice as many machines, however, are leased than are bought. Most makers will lease any type desired. Rates will run from about $700 to $60,000 a month.

You'll pay more eventually if you lease. But manufacturers would prefer that you buy even though it's less profitable for them in the long run. Because of the industry's rapid expansion, they need the money for reinvestment.

Personnel—Computer makers will train operators for companies buying their machines. Classes are held in the offices of the buyer or the computer firm depending on the number of people to be trained. A girl can be trained to operate a computer in four to six weeks. A systems analyst (one who has a working knowledge of an entire computer system) can be taught the necessary skills in 12 to 16 weeks.

Computers Can Be Useful for . . .

- **PAYROLL**—
  Punched card systems can compute and write checks quickly and accurately.
- **BILLING**—
  Computers can co-ordinate complete invoice figures in a single billing.
- **COST RECORDS**—
  Complete computations can be available for materials, labor, indirect expense, unit costs, and deviations from standard costs.
- **PRODUCTION**—
  Regular statistical inventories can be made determining proper reserves, allocations, efficiency ratings, delivery schedules, and quality control statistics.
- **ENGINEERING**—
  Computers can save time for engineers and scientists in evaluating formulas or designs, analyzing frequencies, or other calculations.

Imports: A Warning

Unless sources for metals are cultivated, U. S. industries could face critical shortages

"THE U. S. may soon find it difficult to import metals needed to meet the demands of its increasing population," warns Dr. Charles Will Wright, who is a consultant to the Economic Cooperation Administration and the Bureau of Mines.

Other nations are industrializing and increasing their demands on the world's supply of minerals, explains Dr. Wright. Since the U. S. imports nearly all its ferroalloy materials and more than half its nonferrous metals, the inability to find imports could mean critical shortages for U. S. industries.

Suggestions—U. S. Foreign Service officers should do more to encourage private enterprise and to help build trade with the U. S., says Dr. Wright.

The U. S. should step up its financial aid to underdeveloped countries asking for technical and monetary help. If we don't respond, Russia will, he urges.

Agents of Japanese and German manufacturing firms are selling more and more goods by offering longer credit terms, quicker delivery, and better service than U. S. companies — particularly in Latin America.

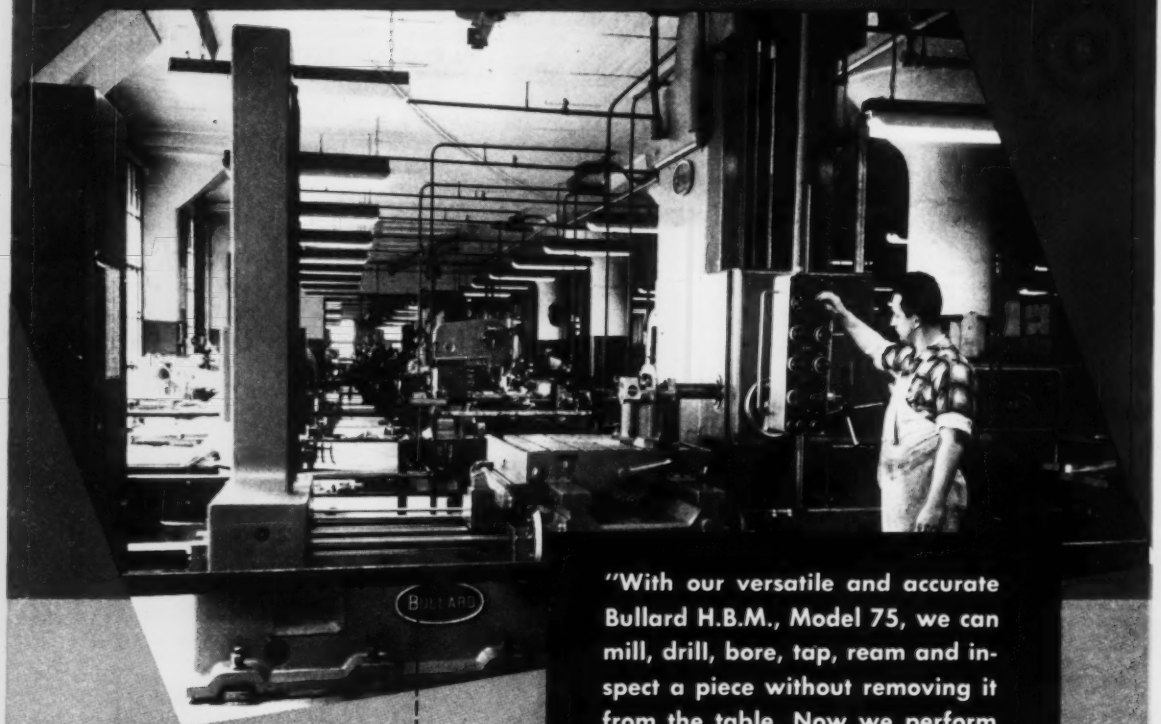
Sales by American firms are dropping off, and American mining companies are finding is difficult to acquire new properties. Because of rising nationalism, they must become willing to accept minority interests or lose out completely, he adds.

Dr. Wright wants the U. S. to follow Russia's example and send more geologists and mining engineers to work with local governments in preparing reports on properties which may interest American mining and industrial firms.

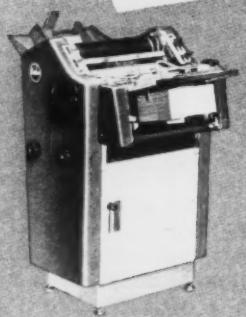
Government assurance should be given that investors will not face undue risk, he recommends. In his opinion, U. S. propaganda efforts should be stepped up to tell Free World industries what our government is doing and what it is prepared to do to help them.

PROFIT DEVELOPMENT ... is important!

"We discovered," reports the Mergenthaler Linotype Co., "that a Bullard H.B.M., Model 75 saves us valuable time. It eliminates much of the waiting and handling time previously used in the fabrication of jigs, fixtures and special parts."



"With our versatile and accurate Bullard H.B.M., Model 75, we can mill, drill, bore, tap, ream and inspect a piece without removing it from the table. Now we perform as many operations as possible on the same machine."



The Dav-a-matic, world's first automatic, all-purpose offset duplicator, is produced by Mergenthaler Linotype Co. with the help of its 3" Bullard H.B.M., Model 75.

BULLARD

Investigate

How modern Bullard Machine Tools can improve your profits

Remember . . . to cut costs when cutting metal — buy Bullard

Phone or write your nearest Bullard Sales Office, Distributor or

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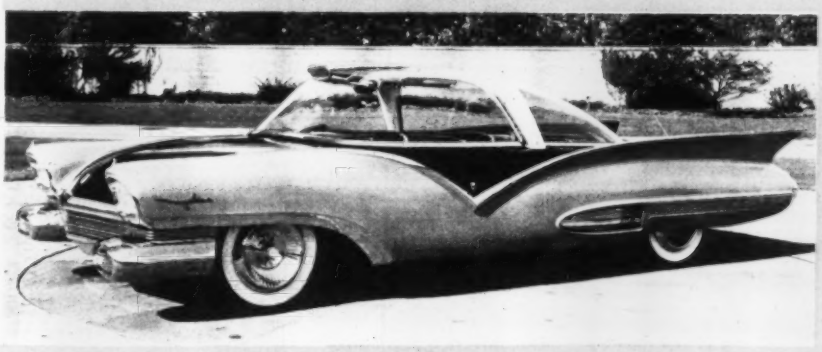
BRIDGEPORT 9, CONNECTICUT

'59 Models Will Have:



More Glass
More Fins
Less Chrome

Ford's Mystere has features that are tip-offs to things to come

NEW MODEL TIME is getting closer, and the flood of last minute engineering changes is about over. Detroit's "spy shops" are working overtime on drawings and mockups of what automakers believe their competition will offer.

Contrary to some reports, 1959 cars won't be significantly shorter than the '58s. Several models will have slightly longer wheelbases. Engines and transmissions remain about the same although top horsepower will be around 425. One car builder plans to offer a standard engine with less displacement, and two General Motors divisions are increasing the displacement of powerplants.

There will be considerably more glass—particularly in GM cars—and less exterior chrome, say insiders. As stated before, general styling themes started in 1957 will be continued (see STEEL, Nov. 4, 1957, p. 79). This will be the first year standardization hits the auto industry in a big way. Motordom is convinced that as labor and material costs rise, the only way it can make annual changes is to use the same parts for several lines and pay them off in a year.

GM Goes Glassy

From a classified memo circulated to top brass in a company that competes with General Motors: "GM's Motorama appears to be definitely scheduled for the fall of 1958. It probably will be used for the introduction of all 1959 GM lines to the public. Current reports are that it is scheduled sometime between Oct. 5 and Oct. 15."

Under GM's standardized concept, Fisher Body Div. will be using 26 to 30 body stampings for all cars. One source says only 11 have to be changed to give lines distinct styling differences.

The over-all width of GM's cars next year will be about 78 in. at the center (B) post. That makes Chevrolet, Pontiac, and Oldsmobile just a shade wider than '58s at that point.

Hardtops — Although earlier reports had it that doors would be hinged at the A and C posts on four-door hardtops, GM has apparently decided to hold off on that approach. But those models will have an interchangeable roof panel. It's similar to this year's Mercury roof; total length of the greenhouse (upper structure) is about 100 in.

GM plans to introduce sweeping compound curved backlights on two-door hardtops. Other models will have the flat, movable rear window now found on Chrysler station wagons and on Mercury's Turnpike Cruiser.

By using the split driveshaft and tipping the transmission a little more, GM hopes to get its sedans down to a height of about 56.5 in. The goal for hardtops is 55 in. (One Dodge model is now 54.5 in. high.)

Power Trains—GM will pretty much stick with what it has enginewise. Oldsmobile plans to keep its 371 cu in. displacement job for the 88 models but is upping the displacement on Super 88s and 98s to 382 cu in. That's being done by increasing the bore 1/16 in. to 4-1/16 in. Pontiac will enlarge displacement from 370 cu in. to around 390 cu in. Chevrolet displacements remain unchanged, report insiders.

Costs—Ford reportedly has built up a full size clay model of the 1959 Chevrolet and figures it will cost

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at least $30 more to build than the 1958 job. Competition indicates Chevy's new windshield alone will cost $12 more than the current one. The rest of the cost comes from increasing the size of the car. Chevrolet plans on a 119-in. wheelbase next year, vs. 117.5 in. now.

Brakes—Talk of 13-in. wheels has died out, and Oldsmobile is returning to 15-in. wheels next year. Two other GM divisions are widening drum surfaces ½ in. to get more braking area. That change combined with low profile tires will make brakes better. GM also is standardizing brake components; it will use the same backing plates for all lines.

Chrysler Lifts Face

Caught in a financial squeeze, Chrysler is making more changes than expected. It broke loose a revamped front end program a few months back and followed with other body changes. But those are largely styling matters and won't have much effect on engineering items like engines and transmissions which reportedly are essentially the same as this year's.

Fins will be smoothed out. Imperial models supposedly will have higher fins than ever—possibly resembling the styling of Chrysler's Dart. Bumpers are broader and will carry out the gull wing appearance. Last report had it that parking lights, at least, would be placed in the bumpers, but with Chrysler changing so much, that may no longer be true. One division (Dodge?) plans a side trim strip of stainless steel 2 in. wide. Vertically striped, it will give a different styling appearance.

Item—Chrysler is still sticking with torsion bar suspension for next year, but it's trying to ready a combination air and torsion system which at least can be offered as an option. One engineer close to the program predicts: Such a system would follow the same route as fuel injection—a quick vanishing act after introduction. The purpose: Sales recognition.

Item—Chrysler (and Ford) were ready to switch to limited alternating current systems in 1959, but budget cuts have shelved the programs for a year. Although GM is standardizing on printed circuits for its 1959 instrument panels, Chrysler will still be wiring—at least until 1960.

Other rumors about Chrysler: Silent, infinite positioning door holding devices; transistorized dash clock; more use of aluminum finned drums for faster brake cooling.

While the 1959 cars are of top interest to buyers, automotive suppliers are looking ahead to ideas for 1960-61. Automakers are anxious to find out what the competition is planning and already have much information. Next week, STEEL will report on the status of 1960 and 1961 programs.

Ford Can't Spring Early

Another informant says Ford Motor Co. may not be able to get its cars on the road as early as GM because of late changes. Ford Div. is aiming at early October for its model introduction, but Mercury, Edsel, and Lincoln will be lucky to get out before November. Edsel and Lincoln grilles were changed again at the end of March, with Edsel unsuccessfully trying to ditch its vertical theme.

The company will introduce two completely new shells next year. One will be shared by Ford and Edsel; the other is for Mercury. The Big 'M' is continuing its styling theme. Wheelbase will be extended to 126 and 128 in., vs. 122 and 125 in. now.

Lincoln will continue its unit body construction through the '59 model year. It's getting a new front end, too. Pushbutton shifting will be standard on Lincoln and available on all lines.

Suspension — Competition forced Ford to introduce air suspension before engineers were completely satisfied, say company sources. Result: Ford, at least, will return to semielliptical leaf springs next year and reportedly will combine them with rear end air suspension as an option for some models. It looks like Lincoln is letting air bags slide by entirely, although it may offer them as a "hard-to-get" option.

U. S. Auto Output

Passenger Only

	1958	1957
January	489,357	641,591
February	392,112	571,098
March	357,049	578,826
April	316,503†	549,239
4 Mo. Total	1,555,021†	2,340,754
May		531,365
June		500,271
July		495,629
August		524,354
September		284,263
October		327,362
November		578,601
December		534,714
Total		6,117,315

Week Ended	1958	1957
Apr. 5	64,318	130,318
Apr. 12	84,997	126,194
Apr. 19	73,219	118,327
Apr. 26	58,664	123,633
May 3	79,508†	119,999
May 10	81,000*	125,924

Source: *Ward's Automotive Reports*
†Preliminary *Estimated by STEEL

Exhaust Notes

- April production totals show the Big Three turned out 316,421 passenger cars, some 26,000 less than they did in March. In the first four months, Ford, GM, and Chrysler built 1,486,884 cars, compared with 2,279,448 units a year ago. Here are the April totals:

	U. S. Production Only—April '58
GM	184,326
FMC	51,864
Chrysler	80,231
Total	316,421

- Detroit talk has it that GM's Massena, N. Y., plant will use more permanent mold equipment rather than sand molding for pouring aluminum. Reason: GM is working hard to develop an automatic pouring setup for a permanent mold line in the plant. If it can be done, it will be a big advance for Chevrolet (it's spearheading the operation) because automatic pouring takes the direct labor out of permanent mold operations and can make it equal to diecasting in price.

- A typical automotive body complete and ready for production weighs 1240 lb, of which some 950 lb is steel and other metals; 150 lb is fabric and trim; 85 lb is glass. The rest is sound deadening and sealing material, says Bart Cotter, chief engineer of GM's Fisher Body Div.

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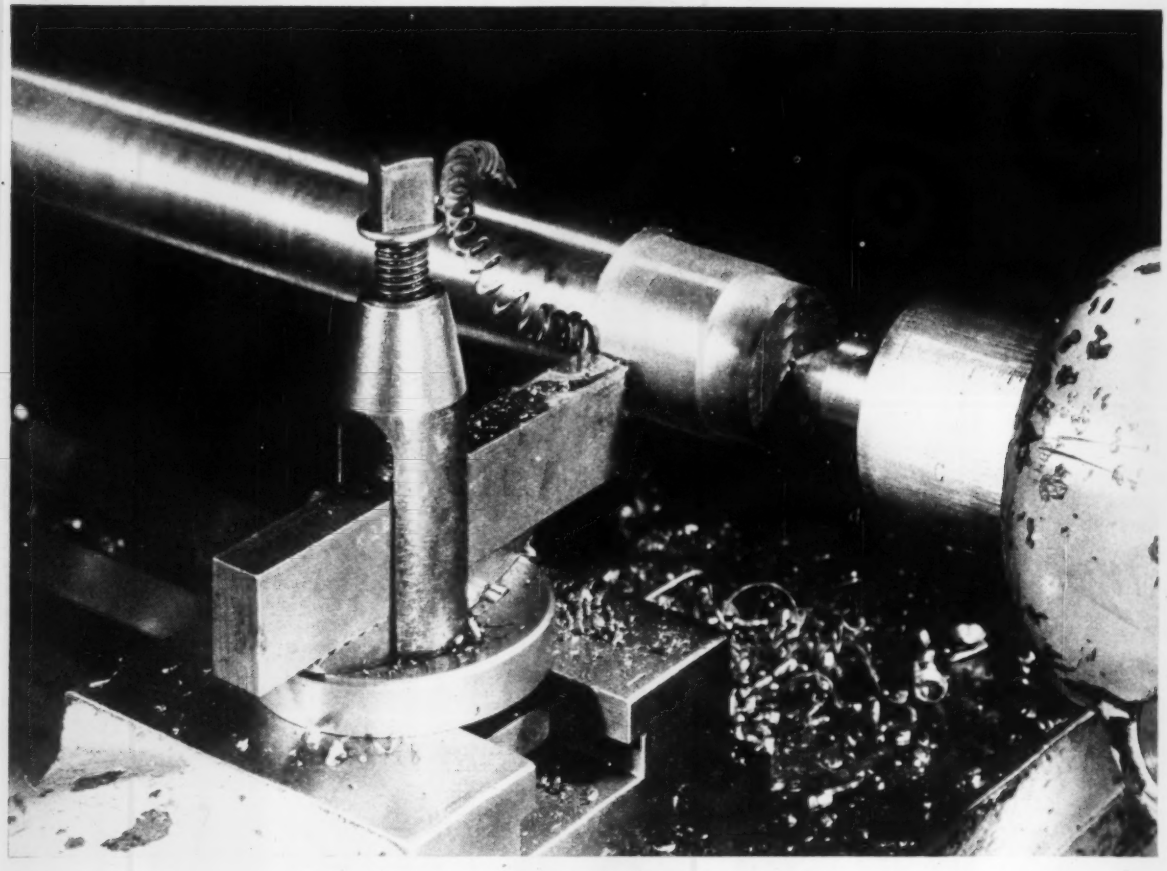

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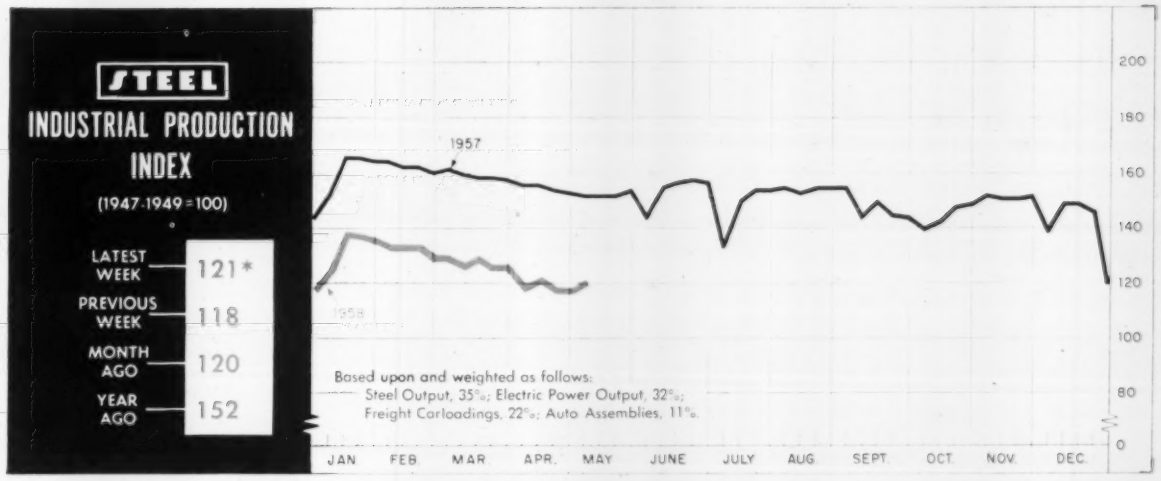

*Week ended May 3.

Seasonal Factors Cause Slight Upturn

THE SPRING production trend line usually makes like the front slope of a mountain. A molehill would be a more apt comparison this year, but many executives will settle for that. It would mean that seasonal influences are in operation again.

Upward pressures are being felt for the first time since last October (see chart above). But now, as then, the pressures will not be nearly as strong as they were in past years, and they may do nothing more than stop the downward rush of the economy. Again, even that would look good to some businessmen.

From Whence Cometh—Three of of the four segments of steel's industrial production index (steel production, electric energy, and auto output) moved up to account for the preliminary reading of 121 (1947-49 = 100) for the week ended May 3. Freight carloadings have moved in a narrow range around 130,000 cars for several weeks.

The most encouraging development is the second consecutive weekly improvement in steel mill operations. Output last week was scheduled at 49 to 50 per cent of capacity, equal to about 1,350,000 net tons of steel for ingots and castings. (That's the best rate since the last week in March.)

Half the increase from the previous week came from the Detroit area mills. Some observers feel the general firming tone of the market is the direct result of seasonal demand from construction.

Misleading Gain—Little of the steel industry upturn can be credited to a bona fide pickup in auto production, even though the industry recorded a 30 per cent gain over the previous period in the week ended May 3. This would be impressive except for the fact that the previous week was the year's worst. Net result: 97,668 cars and trucks, about equal to the March average weekly rate.

Ward's Automotive Reports states

BAROMETERS OF BUSINESS

	LATEST PERIOD*	PRIOR WEEK	YEAR AGO
INDUSTRY			
Steel Ingot Production (1000 net tons)[2]	1,350[1]	1,289	2,220
Electric Power Distributed (million kw-hr)	11,200[1]	11,206	11,286
Bituminous Coal Output (1000 tons)	6,810[1]	7,040	9,973
Crude Oil Production (daily avg—1000 bbl)	6,250[1]	6,288	7,529
Construction Volume (*ENR*—millions)	$483.6	$325.7	$476.0
Auto, Truck Output, U. S., Canada (*Ward's*)	106,838[1]	83,823	155,911
TRADE			
Freight Carloadings (1000 cars)	530[1]	534	719
Business Failures (Dun & Bradstreet)	329	346	263
Currency in Circulation (millions)[3]	$30,518	$30,617	$30,499
Dept. Store Sales (changes from year ago)[4]	+4%	−9%	+3%
FINANCE			
Bank Clearings (Dun & Bradstreet, millions)	$24,004	$25,437	$23,402
Federal Gross Debt (billions)	$275.2	$275.3	$274.0
Bond Volume, NYSE (millions)	$26.4	$30.7	$19.6
Stocks Sales, NYSE (thousands of shares)	12,434	13,609	12,068
Loans and Investments (billions)[4]	$92.1	$92.7	$86.7
U. S. Govt. Obligations Held (billions)[4]	$30.1	$30.2	$30.0
PRICES			
STEEL's Finished Steel Price Index[5]	239.15	239.15	228.59
STEEL's Nonferrous Metal Price Index[6]	196.9	196.5	235.8
All Commodities[7]	119.3	119.4	117.1
Commodities Other than Farm & Foods[7]	125.7	125.7	125.4

*Dates on request. [1]Preliminary. [2]Weekly capacities, net tons: 1958, 2,699,173; 1957, 2,559,490. [3]Federal Reserve Board. [4]Member banks, Federal Reserve System. [5]1935-39=100. [6]1936-39=100. [7]Bureau of Labor Statistics Index, 1947-49=100.

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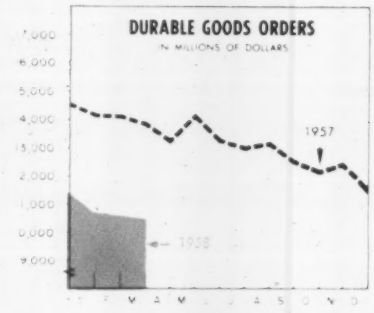
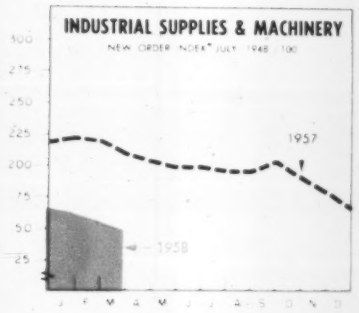




	New Orders*		Sales*	
	1958	1957	1958	1957
Jan.	10,704	14,176	12,646	14,941
Feb.	10,600†	14,102	12,000†	14,808
Mar.	10,500†	13,853	11,700†	14,198
Apr.		13,234		14,254
May		14,115		14,296
June		13,249		14,207
July		13,005		14,573
Aug.		13,160		14,297
Sept.		12,519		14,132
Oct.		12,154		13,932
Nov.		12,434		13,548
Dec.		11,399		13,092

*Seasonally adjusted. †Preliminary.
U. S. Office of Business Economics

	1958	1957	1956
Jan.	163	221	190
Feb.	157	219	190
Mar.	149	210	190
Apr.		203	195
May		199	199
June		199	197
July		197	203
Aug.		197	211
Sept.		203	203
Oct.		192	206
Nov.		180	220
Dec.		167	218

*Seasonally adjusted.
Amer. Supply & Machinery Mfrs.' Assn.

Charts copyright, 1958, STEEL.

that automakers are upping the count a bit for May, but hints that they will fall short of the goal, just as they have every month this year.

Watch These—It would be premature to call the late April rise in electric energy output the beginning of a trend. There is no development strong enough to support a sustained uptrend in this area at this time. When summer begins next month, increased use of air conditioners will provide that strength. Until then, minor fluctuations will hover near the present level of about 11.2 billion kw-hr.

One of the best indications that the downtrend has been halted can be found in railroad freight carloadings. At the 530,000 car level, they are about equal to the figures of five and six weeks ago. The important miscellaneous category (including most of metalworking) has been showing small gains lately to help offset declines in coal loadings.

The seasonal factor should be noticed early this month as both coal and iron ore loadings respond to the opening of the Great Lakes shipping season.

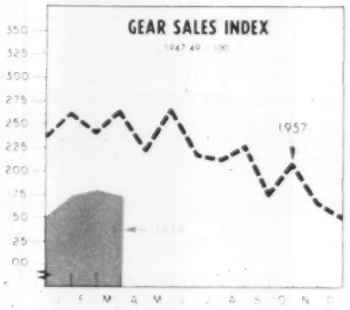
Pitfall—There is no guarantee that STEEL's index will continue to gain, or even hold steady. Just as the auto industry accounted for much of the latest gain, it could put the damper on optimism by hitting the bottom with its on-again-off-again schedules. But seasonal influences should stabilize production.

Orders Off Seasonally

An indication of the size of the molehill can be gained from the Commerce Department's report on durable goods manufacturers' sales and orders for March. Business was better than it was in February; Sales (shipments) went from $11.6 billion to $12.2 billion, and orders climbed from $10.4 billion to $11 billion. But when the department applied seasonal weightings to these figures, it indicated that business wasn't as good as it should have been. (See chart and table, above.) Chief encouragement comes from the fact that the rate of decline is slowing down, especially in new orders.

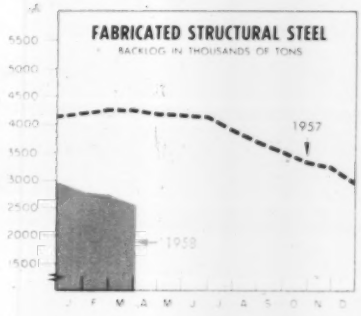
No Trough Until Summer

Taking note of the slowdown in the rate of the economy's decline, the Guaranty Trust Co. of New York cautions that no clearcut improvement has been registered in the so-called leading indicators.



	1958	1957	1956	1955
Jan.	174.5	259.3	245.5	140.9
Feb.	179.1	239.5	256.2	148.5
Mar.	173.7	262.4	276.5	172.8
Apr.	...	221.7	264.7	179.8
May	...	263.2	275.6	205.2
June	...	215.9	245.4	193.5
July	...	211.4	286.7	201.7
Aug.	...	225.8	219.5	217.6
Sept.	...	174.9	230.5	246.5
Oct.	...	207.0	299.8	227.6
Nov.	...	165.3	216.2	210.4
Dec.	...	150.8	235.7	245.5
Avg.	...	216.4	254.4	198.3

American Gear Mfrs. Assn.



	Shipments		Backlogs	
	1958	1957	1958	1957
Jan.	316.7	290.1	2,778	4,194
Feb.	282.6	319.0	2,727	4,262
Mar.	336.6	342.4	2,542	4,245
Apr.	...	362.2	...	4,192
May	...	377.3	...	4,172
June	...	384.7	...	4,134
July	...	342.5	...	3,907
Aug.	...	383.8	...	3,707
Sept.	...	338.6	...	3,521
Oct.	...	384.8	...	3,322
Nov.	...	334.1	...	3,233
Dec.	...	320.2	...	2,959
Total	...	4,179.7		

American Institute of Steel Construction.

"This would indicate a final trough no earlier than the midsummer period. This suggests, in turn, that positive revival in the economy should not be looked for until after Labor Day, at the earliest.

"Unexpectedly early recovery is a possibility, of course, but it would almost certainly require a strong helping hand from the consumer, who so far in the recession has exhibited marked caution."

Canmakers See Good Year

Because of its dependence on the food market, the container and packaging industry is looking for one of its best years. But it will need a good second half to make it come true. A Department of Commerce survey of industry members indicates that the first half will be under the level of the corresponding period of last year, but the year as a whole could be the second best in history.

William C. Stolk, president of American Can Co., predicts that this will be a good year for his company, with improvement possible in every phase of its business. "As far as the general economic situation is concerned," he declared, "there is nothing wrong with this country that hardheaded business action—on the part of industry, labor, and government—can't overcome."

Construction Leads Way

Leading the slight spring upturn is the construction industry. Activity rose seasonally to $3.7 billion (work put in place) in April, say the Commerce and Labor Departments. This brings the cumulative total for 1958 to $13.4 billion, up 2 per cent from the corresponding figure of last year.

Future construction prospects are firming almost weekly. Contracts for heavy construction awards jumped to the second highest figure of the year ($485.6 million) during the week ended May 1, reports *Engineering News-Record*.

Trends Fore and Aft

- Total consumer credit in March ($42,562 million) declined for the third straight month and reached the lowest point since last July.
- The new order index for industrial supplies and machinery (see chart, Page 64) slipped for the sixth consecutive month in March, hitting the lowest level since November, 1954.

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Bridgeport Brass president

NICHOLAS P. VEEDER
heads Granite City Steel

ELMER W. DANY
Patterson Foundry exec. v. p.

WILLIAM A. STEELE
Wheeling Steel president

Austin R. Zender, executive vice president, was elected president of **Bridgeport Brass Co.**, Bridgeport, Conn. **Herman W. Steinkraus**, president since 1942, continues to serve as chairman, general manager, and chief executive officer. Elected vice presidents are: **Gilbert C. Mott**, engineering; **Raymond P. Quadt**, research and development; **Drummond C. Bell**, controller. **Richard W. Summey**, former vice president-manufacturing, was named vice president-operations.

W. A. Meddick was elected president and general manager, **Elwell-Parker Electric Co.**, Cleveland, to succeed the late **Sheldon K. Towson**. Mr. Meddick was vice president-sales manager. **Sheldon K. Towson Jr.** was elected vice president and assistant general manager.

Thomas R. Adams was elected vice president-eastern operations for **Detroit Steel Corp.** Former general manager, eastern mill division, he remains in Hamden, Conn.

Edward C. Helmke was appointed chief engineer, **Gisholt Machine Co.**, Madison, Wis. He was assistant chief engineer.

John H. Kellogg Jr. was made manager, special products division, **Electric Products Co.**, Cleveland.

Ned W. Roudabush was appointed manager of basic sales and technical service, refractories division, **H. K. Porter Company Inc.**, Pittsburgh. He formerly was with General Refractories Co.

Nicholas P. Veeder, president of **Granite City Steel Co.**, Granite City, Ill., was elected to serve also as chief executive officer and chairman, filling the vacancy created by the death of **John N. Marshall**.

Elmer W. Dany was elected executive vice president, **Patterson Foundry & Machine Co.**, East Liverpool, Ohio, subsidiary of Ferro Corp. In addition, he continues duties as vice president of Ferro, in charge of the furnace engineering division.

I-T-E Circuit Breaker Co., Philadelphia, appointed **H. David Honan** manager, industrial sales. He was assistant sales manager, switchboard section. **Arthur G. Curtin**, previously midwest regional sales manager of BullDog Electric Products Co., an I-T-E division, was named manager, contractor sales.

Richard Zinn was made general manager, **Acco Malleable Casting Div.**, American Chain & Cable Co. Inc. He succeeds **Niles L. Kohler**, retired. Mr. Zinn has headquarters at the malleable foundry plant, York, Pa.

Fred R. Soyka was made director of purchases, **Eutectic Welding Alloys Corp.**, Flushing, N. Y.

John E. Potter was elected vice president and treasurer, **Tinnerman Products Inc.**, Cleveland. **Chester A. Jones** was elected secretary; **Robert J. Holton**, executive assistant, responsible for new product development, quality control, and inspection operations.

William A. Steele, executive vice president, was elected president of **Wheeling Steel Corp.**, Wheeling, W. Va. He succeeds **John L. Neudoerfer**, now chairman. **William W. Holloway** retired after serving for ten years as president and 17 years as chairman. **William M. Hall** was elected vice president in charge of sales; **Paul W. Koenemund**, vice president-operations and engineering; **L. W. Franzheim**, vice president-treasurer.

William N. Brammer was made sales manager, **Pressure Castings Inc.**, Cleveland. He was eastern sales manager at Cleveland for Apex Smelting Co.

James K. McLaughlin was made general sales manager, **Magnethermic Corp.**, Youngstown. **Peter A. Hassell** was made assistant general sales manager.

Thaddeus F. Bell was elected a vice president of **Interlake Iron Corp.**, Cleveland. He continues as secretary of the corporation. **Lowell Scheier** was made assistant controller; **Richard Weygandt**, assistant secretary.

Thompson Products Inc., Cleveland, appointed **Stanley C. Pace** a vice president. He is assistant manager of the company's newly formed Tapco Group. **Eugene E. Ford**, counsel for the company, was elected assistant secretary.

Howard C. Beyer joined **Jeta Metal Fabricators Inc.**, Yonkers, N. Y., as general manager of its new Power Equipment Div. He was general manager of Atlantic Diesel Mfg.

WILLIAM G. WALK

FRANK O. PHILLIPS

executive changes at United States Steel

PHILIP O. GEIER JR.

W. KENT MATHIAS

Cincinnati Milling & Grinding vice presidents

Inc. and executive vice president of International Fermont Machinery Co. Inc.

William G. Walk was appointed assistant to vice president-maintenance planning, **United States Steel Corp.**, Pittsburgh. He is succeeded by **Frank O. Phillips** as general superintendent of the Johnstown, Pa., Works. **Willard U. Taylor** succeeds Mr. Phillips as assistant general superintendent there.

William J. Scarlett was named general manager, **Lee Metal Products Co. Inc.**, Philipsburg, Pa. He was food industry manager of Brown Instruments Div., Minneapolis-Honeywell Regulator Co. **George H. Tay Sr.**, vice president-general manager, retired because of ill health, but retains the title of vice president and is available as a consultant.

Norman T. Olsen was elected vice president of **Poor & Co.**, Chicago. He is president of Peerless Equipment Div.

E. Theodore Newbauer was elected vice president-engineering, **Copeland Refrigeration Corp.**, Sidney, Ohio.

W. R. Andrews was named manager of labor relations, industrial relations division, **Allegheny Ludlum Steel Corp.**, Pittsburgh.

S. O. Drivdahl was made general sales manager, contract manufactured products, general manufacturing division, **Scovill Mfg. Co.**, Waterbury, Conn. He was regional sales manager for general manufacturing, and forging and screw machine divisions.

Philip O. Geier Jr. and **W. Kent Mathias** were elected vice presidents of **Cincinnati Milling & Grinding Machines Inc.**, sales subsidiary of Cincinnati Milling Machine Co. Mr. Geier is manager of the company's products division. Mr. Mathias is manager, grinding machine division.

A. K. Boszhardt was made supervisor, crushing machinery sales, **Allis-Chalmers Mfg. Co.**, Milwaukee. He succeeds **W. F. Hackett**, resigned.

A. M. Mras, executive vice president and treasurer, succeeds **D. F. Roby** as president of **American Metal Products Co.**, Detroit. Mr. Roby was elected chairman to succeed **F. C. Matthaei**. **R. J. Williams**, former vice president-research and development, was elected executive vice president. **F. C. Matthaei Jr.**, formerly secretary, was elected vice president-research and development. **A. C. Janis** was elected treasurer; **J. H. Larson**, secretary.

Austin Goodyear, executive vice president of **Hewitt-Robins Inc.**, Stamford, Conn., was elected president to succeed **Thomas Robins Jr.** Mr. Robins continues to serve as chairman and chief executive officer.

Emmett P. Medlock Jr. was made plant manager, **Circuit Instruments Inc.**, St. Petersburg, Fla., subsidiary of International Resistance Co.

P. J. Foley was made general manager of **Worthington Corp.**'s newly created resale operations. Reporting to Mr. Foley are four regional resale managers: **J. E. Seibold**, eastern region; **R. N. Franz**, central region; **J. T. Carroll**, midwest region; **M. H. Needham**, western region.

Riverside-Alloy Metal Div., H. K. Porter Company Inc., appointed **Loy Collingwood** midwest regional manager, with offices at Farmington, Mich.; **Charles E. Phayre**, New York district manager, with offices in East Orange, N. J.; **Robert Clark**, assistant district manager in New York; **Richard Quinn**, assistant district manager in Hartford, Conn. **John L. Hoffman** transfers from the New York district to the Cleveland office.

Howard H. Brauer joined **Fansteel Metallurgical Corp.**, North Chicago, Ill., as staff assistant to Glen Ramsey, vice president and general manager, rectifier-capacitor division. Mr. Brauer was with Bell & Howell Co.

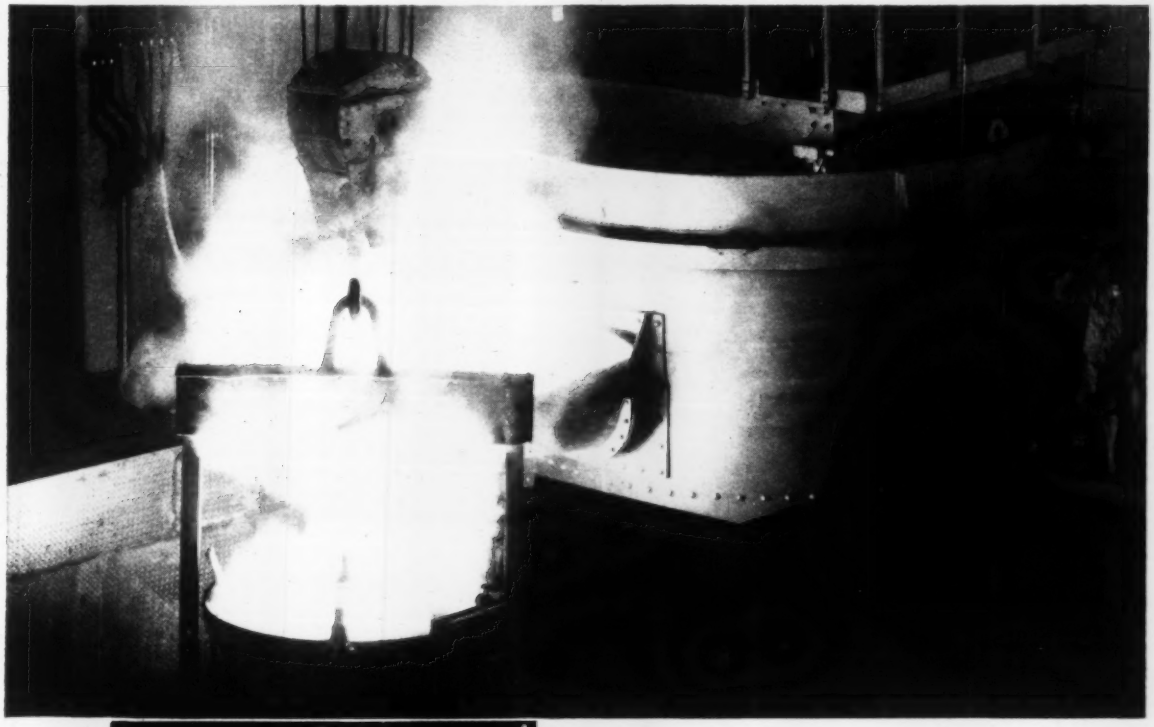
James R. Kallaher fills the new post of general sales manager, **National Vulcanized Fibre Co.**, Wilmington, Del., in charge of sales in all product lines, a function previously handled by **Roy S. Fisher**, vice president-sales director. **Donald W. Stewart** succeeds Mr. Kallaher as Chicago district sales manager. **Ralph E. Bryant**, former sales representative in the New England area, succeeds Mr. Stewart as Boston district sales manager. **George K. LeVan** was appointed to the New England territory.

Arthur Freed joined **Servo Corp. of America**, New Hyde Park, N. Y., as vice president-marketing. He was president, Freed Electronics & Controls Corp.

W. Mel Taylor joined **F. J. Stokes Corp.**, Philadelphia, as assistant to

PROGRESS IN ROLL MAKING

electric melting for large steel rolls



Preparing mold for grooved steel roll.

NEW—

THE ELECTRIC FURNACE

you see has recently been installed in our new steel foundry building for the production of *large* steel rolls.

To meet customers' specific requirements for every roll use, National now has a wide range of sizes of electric furnaces permitting controlled metallurgical composition regardless of roll size.

The new electric furnace is typical of big things that are happening at National—new facilities, new equipment, new processes to give you better, longer lasting rolls. Specify National rolls.

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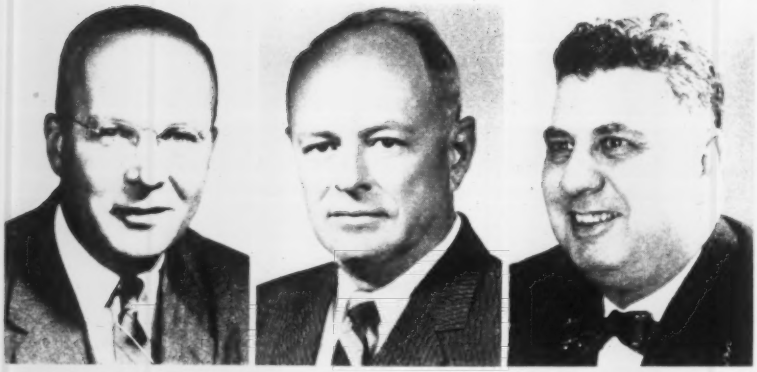
National Roll & Foundry Division

Avonmore (Westmoreland County) Pennsylvania

General Steel Castings Corporation: General Offices, Granite City, Ill.

Plants: Granite City, Ill. — Eddystone, Pa. — Avonmore, Pa.



CARL CLAUS
B&W vice president

WILLIAM J. McCUNE
Sharon Steel v. p.-commercial

STANLEY G. OPPENHEIM
W. S. Rockwell v. p.

JAMES WINDROSS
Fairmont Aluminum v. p.

H. P. MUELLER JR.
Mueller Climatrol exec. v. p.

ROBERT A. ROTHACKER
Republic div. plant supt.

the vice president-sales, and manager of marketing.

James Windross, formerly with Phoenix Mfg. Co., was elected vice president-operations, **Fairmont Aluminum Co.**, Fairmont, W. Va., subsidiary of Cerro de Pasco Corp.

H. P. Mueller Jr. was elected executive vice president, **Mueller Climatrol**, Milwaukee, a division of Worthington Corp. He was vice president-sales. Mr. Mueller succeeds **Frank J. Nunlist**, named to a post at Worthington. Other appointments at Mueller Climatrol include **Curt Hoerig**, former manager of manufacturing, named vice president - manufacturing; **Chester Birch**, named treasurer in addition to his post as controller; **William S. Malloy**, secretary, in addition to his post as personnel manager.

Frank H. Byrne was appointed plant manager, **Dole Valve Co.**, Morton Grove, Ill. **Cyril Grindrod**, vice president and factory manager, has retired.

Robert A. Rothacker was appointed superintendent of Republic Steel Corp's **Union Drawn Steel Div.** plant in Gary, Ind., and **Aaron B. Seitz** was made superintendent of the company's Beaver Falls, Pa., plant. Mr. Rothacker, former superintendent at the Beaver Falls plant, succeeds **George A. Sederberg**, who continues as assistant plant superintendent at Gary.

Eugene V. Kovats was made assistant district manager of **U. S. Steel Corp.'s** Supply Div., Pittsburgh. He was Pittsburgh district manager of the former Gerrard Steel Strapping Div., which recently became a department of the supply division.

Robert F. Watson was made merchant products development manager, merchant products department, **Kaiser Aluminum & Chemical Sales Inc.**, Chicago.

Harold E. Sullivan was made controller, Warren, Ohio, division, **American Welding & Mfg. Co.**

Carl Claus was elected a vice president of **Babcock & Wilcox Co.**, New York. He continues direction of the staff division.

William J. McCune was appointed vice president-commercial, **Sharon Steel Corp.**, Sharon, Pa. He continues as general sales manager.

Stanley G. Oppenheim was named vice president and general manager, **W. S. Rockwell Co.**, Fairfield, Conn. He was manager, gage products division, Norden-Ketay Co.

Frank E. Bastian was made sales manager, **Reynolds Wire Div.**, National-Standard Co., Dixon, Ill.

Irving P. Schwerd was made chief engineer of the Belleville, N. J., plant of **L. Sonneborn Sons Inc.**

E. D. Swenson was named chief engineer, material handling section, **Baker Perkins Inc.**, Saginaw, Mich.

W. R. Lewis was made assistant works manager, **Electro Metallurgical Co.**, division of Union Carbide Corp., New York.

Harold B. Chambers was made vice president-metallurgy, **Atlas Steels Ltd.**, Welland, Ont.

Andrew J. Paucek fills the new post of manager, plastics assembly and mica manufacturing plant, **Sylvania Electric Products Inc.**, at Titusville, Pa. He was manufacturing superintendent of the Titusville plant.

Edward H. Cartwright was elected a vice president of **Enos & Sanderson Co.**, Buffalo.

OBITUARIES...

Hamilton Garnsey Jr., 56, vice president and general manager, **Goulds Pumps Inc.**, Seneca Falls, N. Y., died Apr. 26.

Lester D. Martin, 63, vice president and treasurer, **Oster Mfg. Co.**, Cleveland, died Apr. 29.

Robert T. Wood, 58, chief metallurgist, magnesium products division, **Aluminum Co. of America**, Pittsburgh, died May 4.

S. H. Hammond, 47, chairman, **Whiting Corp.**, Harvey, Ill., died Apr. 28.

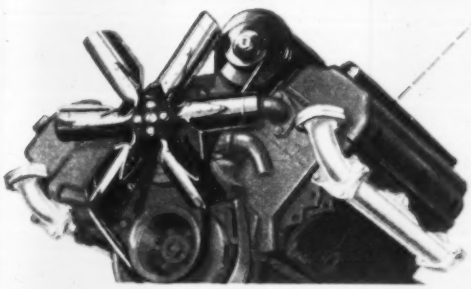
WAYNE EXECUTIVES (left to right): A. W. Carlson, Production Control Manager; Darrel Vincent, Ass't Chief Engineer; Robert Peddicord, Director of Purchases. Kermit Warn (in cab), Experimental Supervisor.

why Wayne Sweepers power with Chrysler Industrial Engines

Wayne sweepers are designed and built for heavy-duty municipal and industrial sweeping. It's tough, dirty work that requires rugged, yet economical power. Wayne Manufacturing Company has found Chrysler Industrial Engines stand up under these demands exceptionally well. Chrysler's oil bath air cleaner protects the engine's working parts in the most extreme dust and dirt conditions. Even at continuous low, lugging speeds Chrysler engines operate coolly, efficiently, economically.

Equally important, manufacturing and purchasing operations are simplified by using Chrysler Power. Engine, transmission and differential are ordered and delivered as a package. Finally, Chrysler Power helps sales because Wayne customers know and respect the reputation of Chrysler Industrial Engines.

CHRYSLER V-8 INDUSTRIAL ENGINE (rear mounted) powers the Wayne Model 550, four-cubic-yard sweeper (shown). Chrysler Ind. 32 (six-cylinder) Engine powers the Wayne Model 450, three-cubic-yard sweeper.



Send for 1958 Chrysler Industrial Engine Catalog:
Dept. C5, Industrial Engine Division, Chrysler Corporation, Detroit 31, Michigan.

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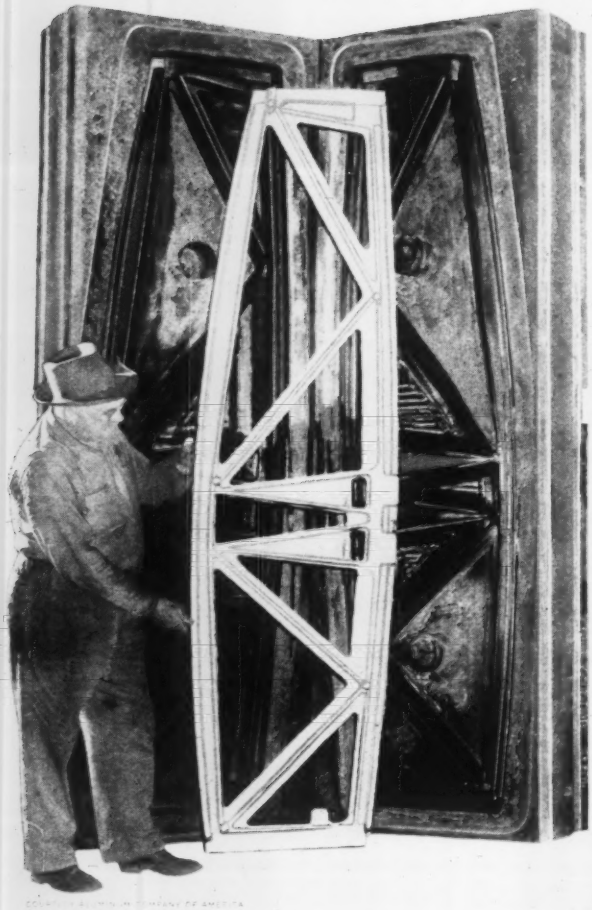

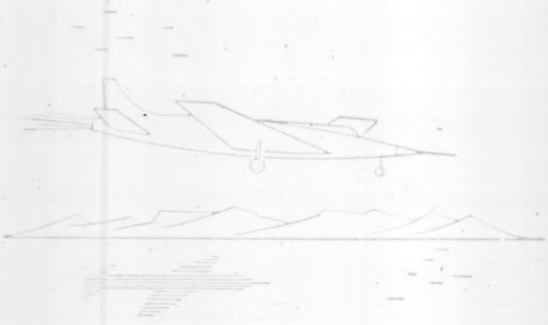

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These two 14 x 35 x 114" FX die blocks, made from Finkl electric furnace steel, and weighing 15,800 pounds each, are used for producing precision aluminum landing gear rib forgings.

Finkl FX die blocks are noted for their long production runs and economy because:

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- FX produces the greatest number of forgings per impression because its well balanced alloy content offers uniform hardness and freedom from temper brittleness. Relatively high tempering temperature promotes ductility and elimination of residual stresses.
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Plans Pipe Mill

National Tube will build continuous buttweld unit at Lorain. Its capacity: 237,000 tons

NATIONAL TUBE DIV., U. S. Steel Corp., Pittsburgh, will build a continous buttweld pipe mill at its Lorain (Ohio) Works. Construction will begin as soon as possible. Completion is expected in two to three years, says John E. Goble, president.

Capacity will be 237,000 tons of finished pipe a year. The facility will replace several older mills which are producing buttweld pipe by the noncontinuous process.

Up to 4 in.—The mill will be designed for production of finished pipe in a size range of 1.25 to 4 in. It will be housed in a new building and will include finishing equipment and stocking and handling facilities.

"Construction of this major facility will insure a continued supply of high quality buttweld tubular products for National Tube distributors and customers in the general construction, fabricating, and conduit industries," says Mr. Goble. "High test line pipe will be produced for the oil and gas industry."

Equipment Maker Expands

Day Co. of Canada Ltd., Rexdale, Ont., is doubling the size of its plant. The new area will be equipped with power machinery for making dust control equipment and bulk material handling and storage equipment.

Missouri Boiler Renamed

Missouri Boiler & Sheet Iron Works, St. Louis, changed its name to Missouri Boiler & Tank Co. The firm now fabricates steel and alloy plate pressure vessels and other plate products; it formerly produced only sheet metal nonpressure vessels and culverts.

Solar Integrates Service

Solar Steel Corp., Cleveland, has enlarged and modernized its River Rouge plant in Detroit to combine, under one roof, the activities formerly conducted by its bar and tube plant with the present River Rouge operations. Daniel A. Friedman is president.

To Move West Coast Plant

Atkins Saw Div., Borg-Warner Corp., Indianapolis, is moving its Portland, Oreg., plant to 337 N.E. Tenth Ave. The new quarters will provide about two and one-half times the space now available and will house about $75,000 worth of new equipment. An additional $100,000 worth of stock will be carried.

Reynolds Adds Cartons

Reynolds Metals Co. added cartons to its line of aluminum foil packaging products with the opening of a new plant in Richmond, Va.

WaiMet Enters New Field

WaiMet Alloys Co., Detroit, producer of master alloys for remelt, has been granted exclusive sales rights for vacuum melted alloys produced by Allvac Metals Co., Monroe, N. C. Roger Metzler is sales manager of WaiMet. J. D. Nisbet is president and technical director of Allvac.

Link-Belt To Build Plant

Link-Belt Speeder Corp., Cedar Rapids, Iowa, will build a plant in Woodstock, Ont., to manufacture power cranes, shovels, and draglines. The firm is a subsidiary of Link-Belt Co., Chicago. The Canadian plant will be operated by a subsidiary, Link-Belt Speeder (Canada) Ltd., under the general managership of Robert M. Bees.

Kennecott Buys Smelter

American Smelting & Refining Co., New York, has agreed to sell its Garfield copper smelter near Salt Lake City, Utah, to Kennecott Copper Corp., New York, for about $20 million. Transfer of ownership will take place around the end of the year and will include inventories of materials and supplies, adjacent real estate, and certain other assets of the smelter. The smelter processes about 625,000 tons of concentrates yearly. Kennecott does not intend to do custom smelting.

Will Close Syracuse Plant

Continental Can Co., New York, will close one of its plants in Syracuse, N. Y., at the end of the year. Output of its can closing machines will be divided among three similar plants situated elsewhere.

Allied Products Expands

Allied Products Corp., Detroit, purchased all the remaining equipment at the Marysville, Mich., plant of Pressed Metal Co. of America Inc. Allied plans to acquire more floor space under a proposed new five-year lease.

Plans Technical Center

Foote Mineral Co., Philadelphia, plans to establish a technical center near Exton, Pa. The laboratories will house the firm's Research & Development Dept. and the Central Engineering Dept. Facilities for commercial production of transistor grade silicon metal will be erected on the same site.

Shifts Plant Operations

Robertshaw-Fulton Controls Co., Greensburg, Pa., transferred the heating controls section of its Acro Div. at Columbus, Ohio, to its Grayson Controls Div., Long Beach, Calif. Precision snap-acting switch line will continue to be produced at the Acro Div.

Distributor Expands

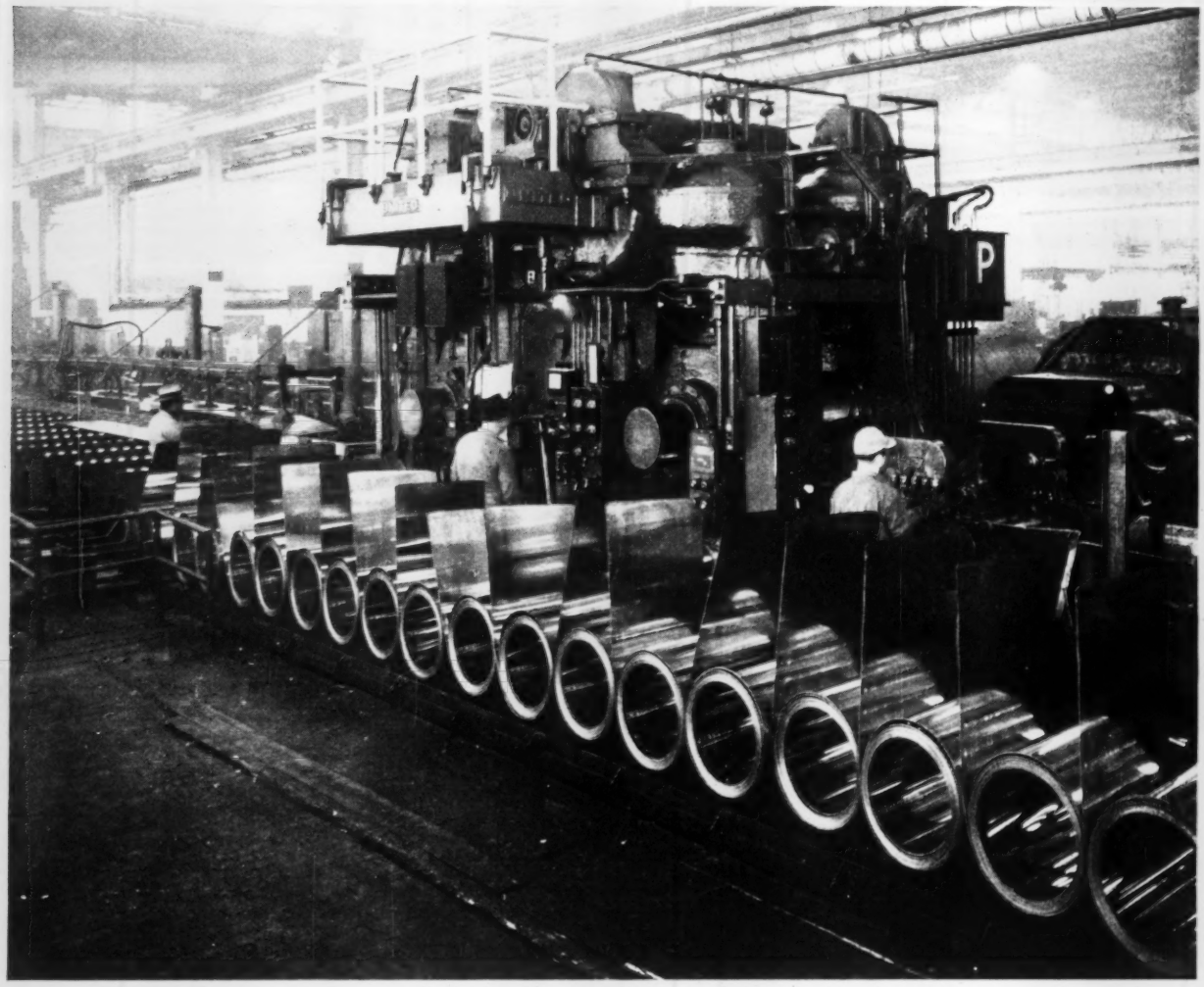
Earle M. Jorgensen Co., Los Angeles, completed an addition to its service center in Dallas. The steel and aluminum distributor has increased its warehouse and office space and has added several hundred new stock items at that center.

Lukens Enlarges Facilities

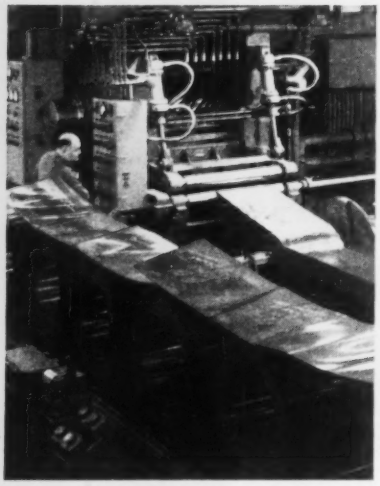
Lukens Steel Co., Coatesville, Pa., awarded a contract to Mesta Machine Co., Pittsburgh, for a 140-in. four-high plate mill with vertical edging mill and auxiliary equipment including transfer cars, tables, and descaling and lubricating systems.

Lukens is also revising its oxygen supply system. Linde Co., a division of Union Carbide Corp., New

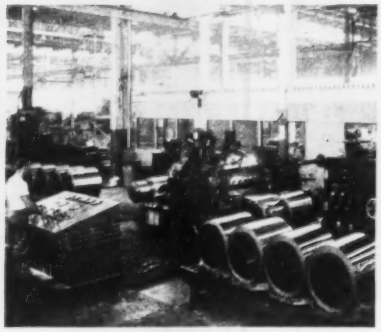
(Please turn to Page 76)



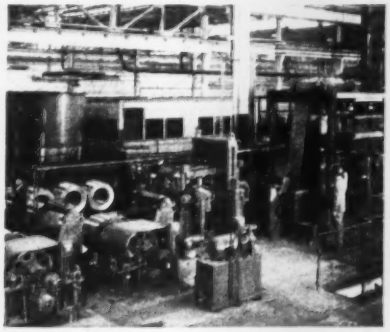
PAIRED FOR PRODUCTION, this tandem 4-High Cold Rolling Mill processes metal bar into workable sheets—operates at higher speeds to match the requirements of other new production machinery.



ONLY ONE OF ITS KIND, this new Chase Mill has the finest electronic and automatic controls available, to assure careful control of surface, gauge and quality.



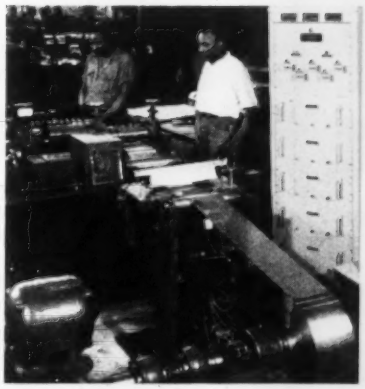
PRECISION FINISHING of sheet and strip is produced by this Sendzimir Rolling Mill —assures you of highest quality in your own finished products.



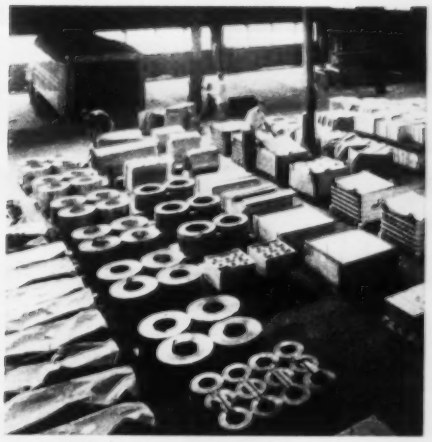
KEEPING TEMPER is the assignment of this combination strip cleaning, annealing, pickling and drying-out line in the new Chase production facilities.

The Nation's Headquarters for Brass, Copper and Stainless Steel

Atlanta Baltimore Boston Charlotte Chicago Cincinnati Cleveland Dallas Denver Detroit Grand Rapids Houston Indianapolis Kansas City, Mo. Los Angeles



NOT EVEN A PIN-HOLE gets by the electronic eye of this quality-control machine. Result—high quality to end costly rejects on your production line.



UNRIVALED SHIPPING *and Handling Facilities* assure quick handling and delivery ready for use. Note care Chase takes in packaging to protect the metal.

Now you get these 5 big advantages from ultra-modern facilities at Chase Brass!

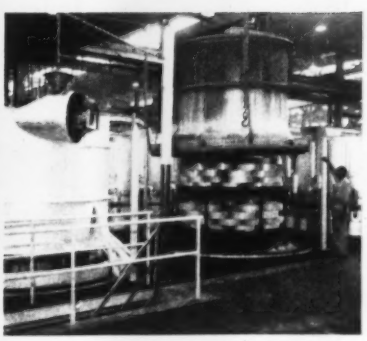
1. You can now buy heavier coils—up to 100 lbs. per inch of width in unwelded brass and up to 130 lbs. per inch of width in copper. Longer coils match requirements of modern high-speed production equipment in your plant.

2. You can count on the best surface ever! Special mills now used are designed to produce unrivaled surface quality in both sheet and strip.

3. You can be sure of maximum gauge control. Ultra-modern electronic and automatic controls protect close-tolerance gauges from end to end of every strip.

4. You're assured better-than-ever annealing! New continuous strip annealing and bell-type annealing furnaces protect grain size and surface quality far better.

5. You can rely on delivery matched to your own production-line requirements! Automation, speeded-up operations, faster output all combine to guarantee quicker quantity deliveries.



OUT OF A PICKLE! Controlled inert gas atmosphere in new bell-type furnaces eliminates need for intermediate pickling.

Chase

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SUBSIDIARY OF KENNECOTT COPPER CORPORATION

MADE IN U.S.A. TO THE STANDARDS OF AMERICAN INDUSTRY

Milwaukee Minneapolis Newark New Orleans New York (Maspeth, L. I.) Philadelphia Pittsburgh Providence Rochester St. Louis San Francisco Seattle Waterbury

(*Concluded from Page 73*)

York, will erect, operate, and maintain an automatically operated on-site plant capable of producing gaseous oxygen at a maximum rate of at least 80 million cubic feet a month. The plant will replace a Linde 20-million cu ft plant plus the supplemental liquid deliveries now meeting Lukens' oxygen needs. Linde also will erect facilities for storing oxygen as a gas and as a liquid.

Cochran Foil Co. Expands

Cochran Foil Co., Louisville, has completed a $1-million expansion program. New high-speed aluminum foil and sheet rolling mills accounted for the major portion of the expenditure, the balance going for aluminum slitting and foil laminating equipment. Cochran became a subsidiary of the Anaconda Co. on Apr. 30.

Industry To Get Reactors

Lockheed Aircraft Corp.'s Georgia Div., Marietta, Ga., formed a separate operating branch to manufacture nuclear reactors for the generation of industrial heat. Robert W. Middlewood has been named director of the new facility, Georgia Nuclear Laboratories.

Seeks To Broaden Market

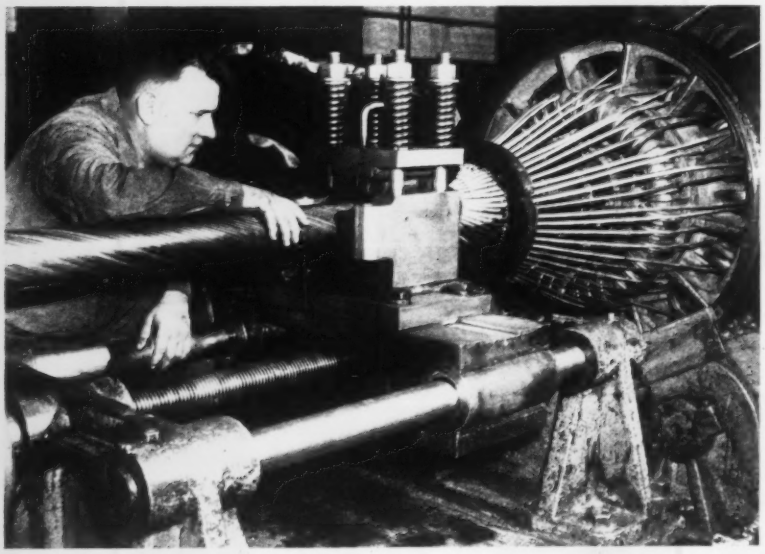
Aluminum Co. of America, Pittsburgh, purchased the Transformer Div. of Automation Instruments Inc. at Boulder, Colo. Alcoa's market objective is the application of aluminum foil and sheet strip windings for transformers and miscellaneous electrical equipment. The newly acquired facility will be moved to Alcoa Research Laboratories, New Kensington, Pa. Alcoa does not intend to manufacture electrical coils.

Hedges Rebuilds Plant

M. M. Hedges Mfg. Co. Inc., Chattanooga, Tenn., has resumed partial production following a fire at its plant. Damaged portion of the plant will be rebuilt, incorporating new fabricating equipment. Part of the domestic water heater production cycle will be completely automated.

Sterling Changes Name

Sterling Wheelbarrow Co., Milwaukee, changed its name to Sterling National Industries Inc.



LOCK COIL CABLE leaves the "Queen Mary" wire stranding machine at the Trenton (N. J.) Works, American Steel & Wire Div., U. S. Steel Corp. George Trahuba, operator, inspects the surface of the 4-in. finished cable which will support buggies carrying construction materials for Arizona's Glen Canyon Dam. Forty-eight lock wires (right) form the outer cover of the cable, which is composed of 312 individual steel wires. The cable weighs 38 lb per ft.

Offers New Type Piping

Tube Turns Plastics Inc., Louisville, and Swepco Tube Corp., Clifton, N. J., jointly announced the manufacture and sale of unplasticized polyvinyl chloride lined fittings and pipe. Swepco will make the pipe. Tube Turns will make the fittings and will market both fittings and pipe.

Cen-Tec Corp. Organized

Cen-Tec Corp. has been organized to design and build hydraulic, electronic, and pneumatic test equipment. It is a subsidary of Centri-Spray Corp., Livonia, Mich., and has offices and manufacturing departments as 38903 Schoolcraft Rd., that city. Officers include M. M. Schimpke, president, and G. H. Shaffer, general manager.

Opens Plant in Alabama

Serrick Corp., Defiance, Ohio, will operate a metal products plant in Cullman County, Alabama. The operation will be called Cullman Products Div. Stainless steel and aluminum decorative moldings for automobiles and appliances will be produced.

Union Metal Expanding

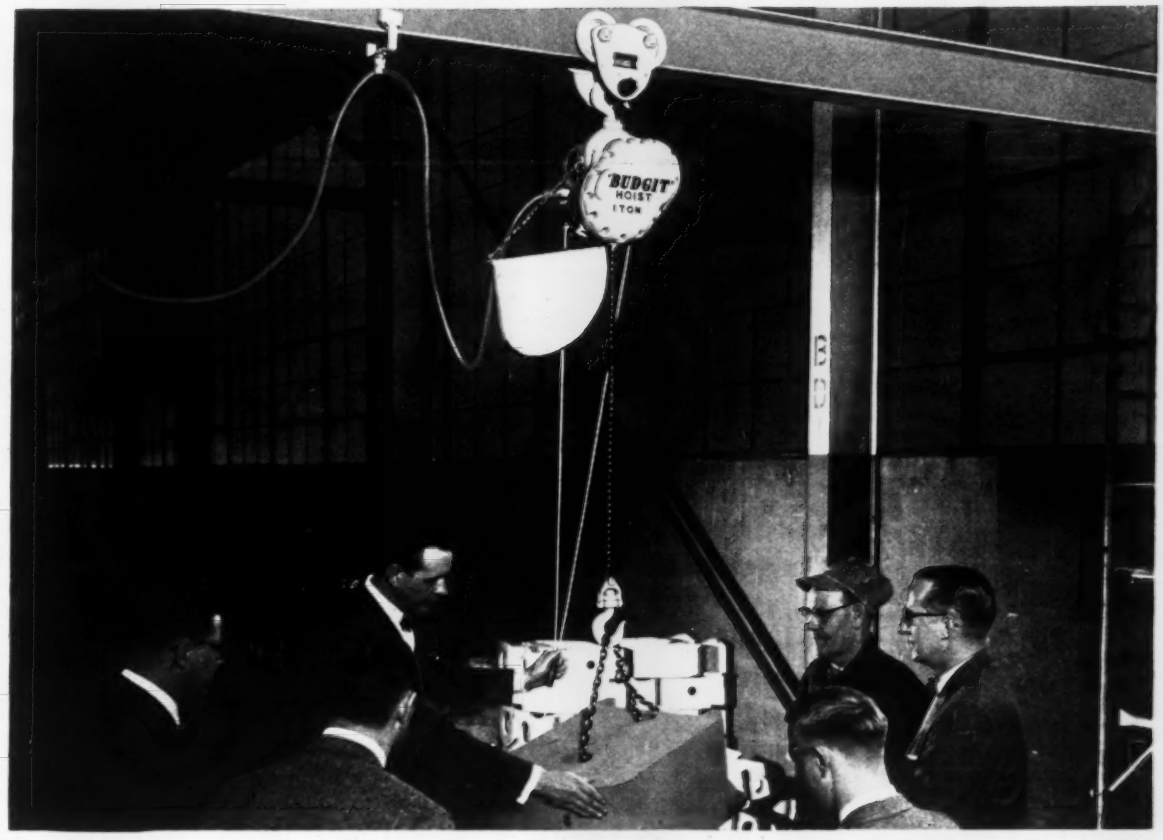
Union Metal Mfg. Co. of Canada Ltd., Brampton, Ont., plans to build a 14,000 sq ft addition to its plant, bringing the total to 30,000 sq ft. The firm makes steel poles for lighting fixtures and overhead sign supports, and other special steel products.

Chemical Firm Renamed

American Chemical Paint Co., Ambler, Pa., changed its name to Amchem Products Inc.

Offers Dysprosium Metal

Dysprosium metal, one of the rare earths, is being produced in commercial quantities by Nuclear Corp. of America, Burbank, Calif. Most likely applications: In the construction of nuclear reactors and in magnetic alloys for electronic devices. Uses in other fields will have to be determined by further research, a company spokesman



GET A **Free**

Demonstration

LIKE THIS IN YOUR PLANT

Ask us to prove how a 'Budgit' Hoist can cut YOUR lifting costs

Pick up your phone. Call the nearby 'Budgit' Electric Hoist distributor to send a man out with a hoist. (If he isn't listed under 'Budgit' in the hoist section of the yellow pages, write us.) Tell him you've picked a spot to hang the hoist and plug it in. In the few minutes the demonstration takes, you will know how easy, fast and safe lifting can be.

'BUDGIT' IS A MONEY SAVER

Mere pennies pay for all the electricity the 'Budgit' uses a day. It's fast — lifts ¼-ton at 34FPM. One-hand control frees the other hand to guide the load. Each of the two entirely separate automatic brakes alone can hold the load safely. "Quick as a wink" braking saves time in "spotting" loads in machines and for assembly.

No extras to buy. 'Budgit' is a complete lifting tool. Capacities: ⅛ to 2 tons. AC and DC models. 12-volt models operate from truck battery. Priced from $159.

Call your Shaw-Box distributor for a free demonstration today. Or write for Bulletins 15010-14 and 15010-20.

Service stations from coast to coast save time, trouble and money for every 'Budgit' user.

58A-3

MANNING MAXWELL & MOORE INC. M&M TRADE MARK

'Budgit'® **ELECTRIC HOISTS**

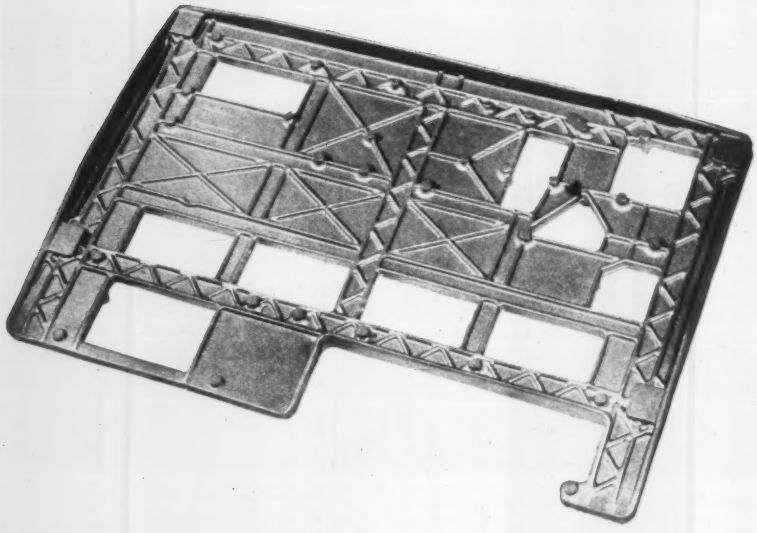
MANNING, MAXWELL & MOORE, INC.

SHAW-BOX CRANE & HOIST DIVISION

384 W. Broadway • Muskegon, Michigan

Builders of "SHAW-BOX" and 'LOAD LIFTER' Cranes, 'BUDGIT' and LOAD LIFTER' Hoists and other lifting specialties. Other Divisions produce 'ASHCROFT' Gauges, 'HANCOCK' Valves, 'CONSOLIDATED' Safety and Relief Valves and 'AMERICAN' and 'AMERICAN-MICROSEN' Industrial Instruments.

In Canada: *Manning, Maxwell & Moore of Canada, Ltd., Galt, Ontario*



EXCELLENT BASE FOR PROFITS

This ninety-six pound casting was made for the National Cash Register Co. of Nodulite®, Hamilton Foundry's ductile iron. The casting forms the base for the new Post-Tronic Accounting Machine. It measures 37½" by 23½" with sections varying from ¼" to 1½". Ductile iron was chosen for this part because of its ductility, dimensional stability, rigidity, and machinability.

Sharp pencil buyers know that the *ultimate* cost of a casting rather than the purchase price is most important to the cost of the end product. Dimensional accuracy, uniform machinability, fine surface finish, low rejects and delivery of orders on schedule result in castings at lowest ultimate cost and insure your reputation for product quality.

When new and unusual design problems arise in the selection of metal and the casting of parts, you will find that the skill and integrity of your foundry is your best insurance that specifications—and delivery schedules—will be met.

GRAY IRON • ALLOYED IRON • MEEHANITE ® • DUCTILE (NODULAR) IRON • NI-RESIST • DUCTILE NI-RESIST • NI-HARD

HAMILTON FOUNDRY

The Hamilton Foundry & Machine Co., 1551 Lincoln Ave., Hamilton, Ohio • TW 5-7491

says. The firm is producing dysprosium of 98 to 99 per cent purity in lump and ingot form, in gram up to pound lots.

Singer Forms New Division

Singer Mfg. Co., New York, established a Military Products Div. to develop and produce electronic and electromechanical equipment for the defense industries and the armed forces. Frederick W. Howells is manager of the division.

Chubb Safe Expands Plant

Chubb Safe Co. Ltd. acquired additional plant space at 24 Buckingham St., Mimico, close to its main plant and office at 577 Oxford St., Toronto, Ont. The firm now occupies 30,000 sq ft of floor area.

Enlarges Steel Warehouse

Howard Supply Co., Los Angeles, distributor of steel products, acquired 30,000 sq ft of additional space to house its Commonwealth Steel Div. which specializes in sheet steel and wire products.

Gear Works Renamed

Philadelphia Gear Works Inc., Philadelphia, will change its name to Philadelphia Gear Corp. on June 1. The firm makes power transmission equipment.

Metal Fabricator Expands

Walz & Krenzer Inc., Rochester, N. Y., is erecting a building which will double its present capacity. The firm makes marine equipment, bridge railings, generator parts, and other metal fabrications.

NEW OFFICES

Century Electric Co., opened a new office-warehouse at 16115 Puritas Ave., Cleveland 35, Ohio.

Selas Corp. of America, Dresher, Pa., established a district office at 1901 W. Eighth St., Los Angeles 57, Calif.

Alliance Machine Co., Alliance, Ohio, opened an engineering office

ROLLWAY® Tru-Rol® BEARINGS

For a sound balance of LOW COST and HIGH PERFORMANCE

When you need maximum precision bearings, buy them. They'll save you money. Rollway has them in all types and sizes.

But in hundreds of applications, maximum precision means *unused* precision. The speed, load and life-expectancy demands are not critical. For these spots, Rollway's Tru-Rol Bearings are engineered to give all that is required in performance at worthwhile savings in cost.

Maximum-Type Design and Construction Principles

The Tru-Rol segmented steel retainer is the strongest, most durable available in commercial-grade bearings. Its separator segments are formed to the curvature of the roller for true axial alignment. In combination with rollers crowned to provide equal load distribution, it withstands heavy shock and reversing loads over long periods.

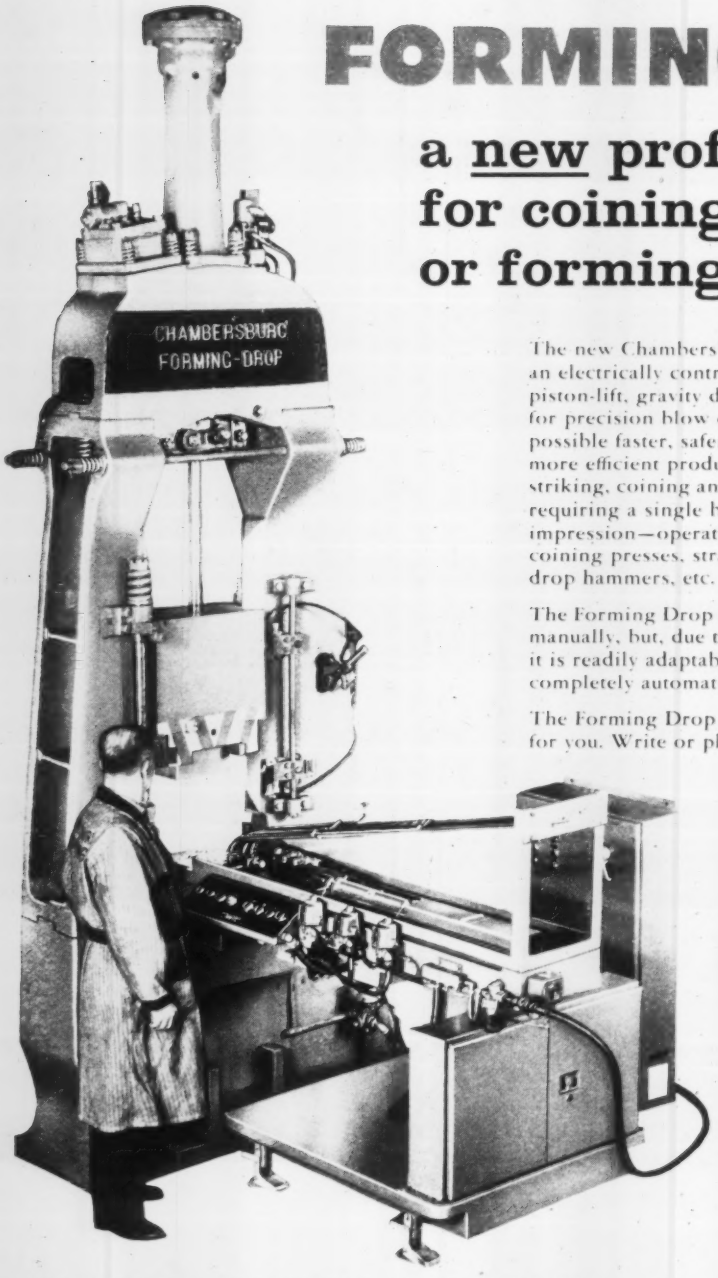
For all the precision and performance you need and can use in non-critical applications, ask a nearby Rollway Service Engineer to brief you on Rollway Tru-Rol characteristics and versatility.

ROLLWAY BEARING COMPANY, INC.
SYRACUSE, NEW YORK

ENGINEERING OFFICES: Syracuse • Boston • Chicago
Detroit • Toronto • Pittsburgh • Cleveland
Milwaukee • Seattle • Houston • Philadelphia
Los Angeles • San Francisco

CHAMBERSBURG
FORMING DROP

a new profit maker for coining, embossing or forming operations

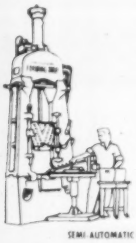


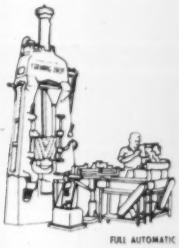
The new Chambersburg Forming Drop is an electrically controlled, air-operated, piston-lift, gravity drop hammer, designed for precision blow control. It makes possible faster, safer, almost effortless, more efficient production on forming, cold striking, coining and embossing operations requiring a single blow in a single die impression—operations common to coining presses, strap hammers, pneumatic drop hammers, etc.

The Forming Drop may be fed and operated manually, but, due to its electrical control, it is readily adaptable to semi-automatic or completely automatic operation.

The Forming Drop may hold possibilities for you. Write or phone for further details.

MANUAL

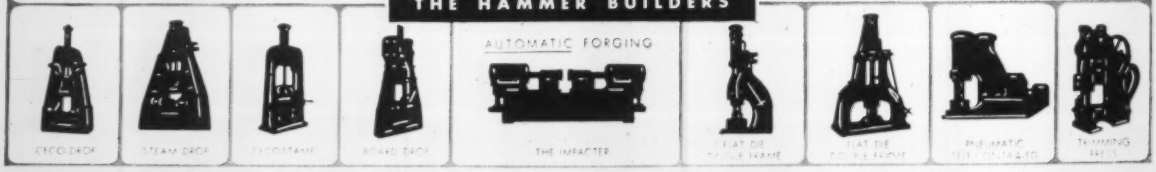

SEMI-AUTOMATIC


FULL AUTOMATIC

CHAMBERSBURG ENGINEERING COMPANY . . . . . CHAMBERSBURG, PA.

CHAMBERSBURG

THE HAMMER BUILDERS



at 550 Kearny St., San Francisco 8, Calif.

CONSOLIDATIONS

Cleveland Pneumatic Industries (formerly Cleveland Pneumatic Tool Co.), Cleveland, purchased **Renco-Toledo Inc.**, Toledo, Ohio, manufacturer of machine tool automation devices. Cleveland Pneumatic is a prominent manufacturer in the aviation, missile, and marine fields.

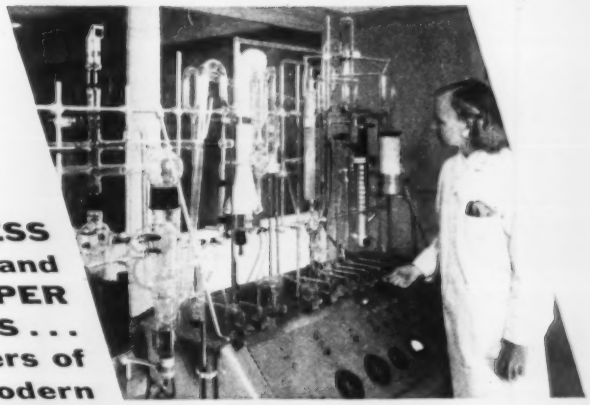
Handy & Harman, New York, purchased **Posen & Kline Tube Co. Inc.**, Norristown, Pa., maker of small diameter precision industrial tubing in stainless steel, carbon and alloy steels, nickel, and other alloys. This is a further step in Handy & Harman's diversification program to extend its operations beyond the field of precious metals. The Norristown firm will be operated as a subsidiary under the presidency of Stanley G. Posen.

Rockwell Spring & Axle Co., Coraopolis, Pa., is negotiating for purchase of **Aero Design & Engineering Co.**, Bethany, Okla.

Giant Grip Mfg. Co., Oshkosh, Wis., purchased **Prevost Forged Products**, Detroit. The business will continue as the Prevost Forge Div. of Giant Grip Mfg. Co.

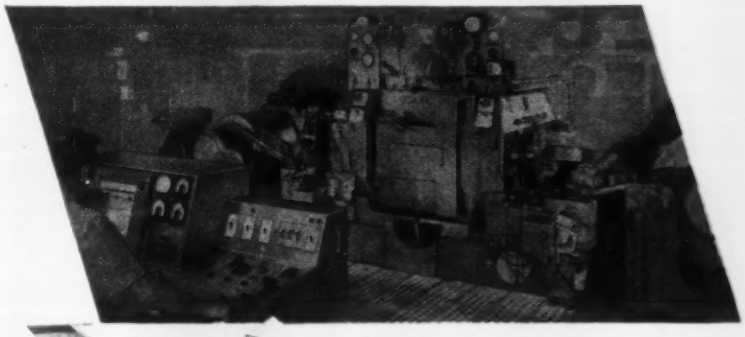
Mallory-Sharon Metals Corp., Niles, Ohio, producer of reactive metals, acquired the common stock of **Johnston & Funk Titanium Corp.**, Wooster, Ohio, producer of titanium and zirconium wire and rod. The Wooster firm also offers vacuum melted steel welding wire for specialty uses.

Lovejoy Flexible Coupling Co., Chicago, producer of power transmission equipment, acquired controlling interest in **Hi-Lo Mfg. Co.** (formerly Equipment Engineering Co.), Minneapolis. The acquisition augments the present Lovejoy variable speed pulley line with a complete range of cam-controlled units from fractional to 5 hp. Hi-Lo Mfg. will continue operations in Minneapolis under the presidency of V. G. Nordley. Lovejoy is building



STAINLESS STEEL and SUPER METALS . . . workers of modern

miracles



Stainless steel and super metals have so many desirable characteristics — corrosion resistance, strength, hardness, beauty, workability — they are often termed "miracle metals." But they can perform miracles *only if you select the right analysis for your particular application.* Wallingford is more qualified than ever to help you do this. Now, an all-new metallurgical laboratory and a larger staff of expert technicians are at your service.

In such fields as nucleonics, aviation and guided missiles, stainless steel and super metals will accomplish miracles *only when gages can be held to the close tolerances demanded.* Wallingford's Sendzimir Mills, equipped with non-contacting, continuous gages, assure this. A feed-back system provides fully automatic correction of the mills to maintain strip thickness with required tolerances at all times. These mills make Wallingford one of the few companies capable of producing precision strip in widths up to 27" and as thin as .001" . . . and give Wallingford the largest foil capacity in the country.

Investigate Wallingford's ability to provide stainless steel and super metals that will perform "miracles."

THE WALLINGFORD STEEL CO.

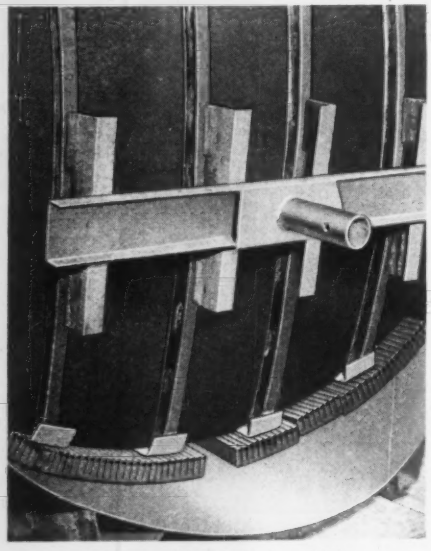
Progress in Metals for over 36 Years

WALLINGFORD, CONN., U.S.A.

COLD ROLLED STRIP: *Super Metals, Stainless, Alloy*

WELDED TUBES AND PIPE: *Super Metals, Stainless, Alloy*

Rubatex provides "built-in" temperature control – sanitation – additional payload!



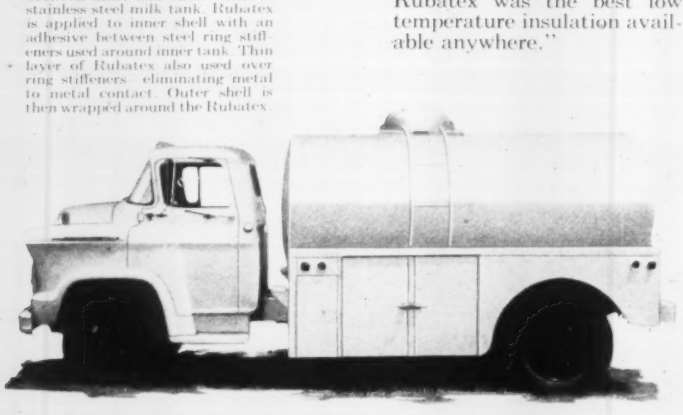
2" layer of Rubatex is applied between inner and outer shells of stainless steel milk tank. Rubatex is applied to inner shell with an adhesive between steel ring stiffeners used around inner tank. Thin layer of Rubatex also used over ring stiffeners eliminating metal to metal contact. Outer shell is then wrapped around the Rubatex.

Rubatex answers need for careful temperature control in transporting milk as it has lowest heat conductivity (K Factor .0.21) of any known structural material and maintains its insulating efficiency indefinitely.

Rubatex's closed cellular structure also eliminates any possibility of bacterial growth between shells of tank—an important feature in handling liquid foods of any kind.

Last—by no means least—Rubatex's light weight helps give Standard Steel Works one of the lightest farm pick-up tanks on road today—providing owner with an additional payload on his choice of truck.

In Standard Steel Works' own words: "After considerable investigation, we found Rubatex was the best low temperature insulation available anywhere."



Insulation efficiency, moisture and vermin proof qualities plus extreme light weight determined choice of Rubatex Insulation Hardboard as insulation for Standard Steel Works' 1700 gallon "Payloader" farm bulk pick-up tank.

RUBATEX
INSULATION HARDBOARD

RUBATEX DIVISION, Dept. S-8
GREAT AMERICAN INDUSTRIES, INC.
Bedford, Virginia

PIONEER MANUFACTURER OF CLOSED CELLULAR RUBBER

For full details and sample of Rubatex Insulation Hardboard—print your name in space below, attach to your company letterhead and mail to us.

Name _____

Send for Free Sample and full details

a 12,000 sq ft plant adjacent to its offices and factory at 4949 W. Lake St., Chicago.

NEW ADDRESSES

Cobra Metal Hose Div., DK Mfg. Co., Chicago, moved to its new plant at 5059 S. Kedzie Ave., that city. The division makes metal hose assemblies.

Instron Engineering Corp., manufacturer of precision material testing equipment, moved to 2500 Washington St., Canton, Mass. The firm also appointed E. J. Tolle sales manager and R. O. Smith production manager.

Tri-Motor Inc. is moving into the former Nutmeg Hardware Corp. plant at Torrington, Conn. The firm plans to build an addition to the present building.

ASSOCIATIONS

Wire Reinforcement Institute Inc., Washington, elected these officers: President, E. C. Planett, Planett Mfg. Co., Downey, Calif.; vice president, F. P. Schusler, Industrial Div., Keystone Steel & Wire Co., Peoria, Ill.

L. F. Shoemaker, Allis-Chalmers Mfg. Co., Milwaukee, was elected president of the **Internal Combustion Engine Institute**, Chicago. Other officers include: Vice president, Comdr. A. D. Marks, Hercules Motors Corp., Canton, Ohio; treasurer, H. H. Howard, Caterpillar Tractor Co., Peoria, Ill.; and secretary, J. V. Doe, Willys Motors Inc., Toledo, Ohio.

Gas Appliance Engineers Society, Rocky River, Ohio, elected these officers: President, D. R. Weidenfeller, Baso Inc., Milwaukee; vice president, K. T. Davis, Carrier Corp., Syracuse, N. Y.; and treasurer, L. T. Tegler, A. O. Smith Corp., Milwaukee.

American Nuclear Society will move its headquarters on July 1 from Oak Ridge, Tenn., to 86 E. Randolph St., Chicago.

Whether you figure your parts production in thousands or millions, a Wean "Flying Press" can help cut costs

There is really no minimum production figure at which the ability of the Wean "Flying Press" to reduce cost/piece is diminished. For example, a "Flying Press" sold to a contract stamper is enabling this firm to get more short-run business, since a very competitive price can be quoted.

But where component parts are produced in large quantities, substantial economies are assured with the Wean "Flying Press." Due to the unique design of the "Flying Press," it processes coil at up to 300 fpm *continuously:* the strip never stops for indexing but flows through the "Flying Press" at a uniform rate. This elimination of "stop-and-go" operation, which has characterized and limited conventional stamping presses for years, has a further advantage than speed of production alone: it's easier on the dies. Actual comparative tests conducted by a "Flying Press" user showed that monthly die maintenance was reduced some 36% when standard dies were run on the "Flying Press."

The complete concept of the "Flying Press" takes a good bit of explanation: the practicality of it for your operations also requires the personal service of a Wean Sales Engineer. We suggest that, as a first step, you write us for an illustrated brochure on the "Flying Press": then we can arrange to have a Wean representative call at your convenience to explore the matter further. If you are actively interested in how this unusual piece of processing equipment can serve you, we can run your dies on a demonstration machine at our Cleveland plant.

WEAN

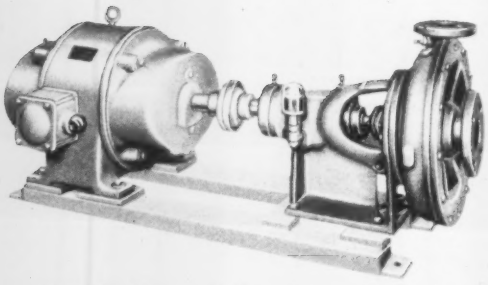
WEAN EQUIPMENT CORPORATION

CLEVELAND 17, OHIO

Detroit • Chicago • Newark

Production-built AMPCO® Pumps, FAFNIR-equipped, do job of costly "specials"

Interchangeable parts cut costs . . . provide unique pump versatility

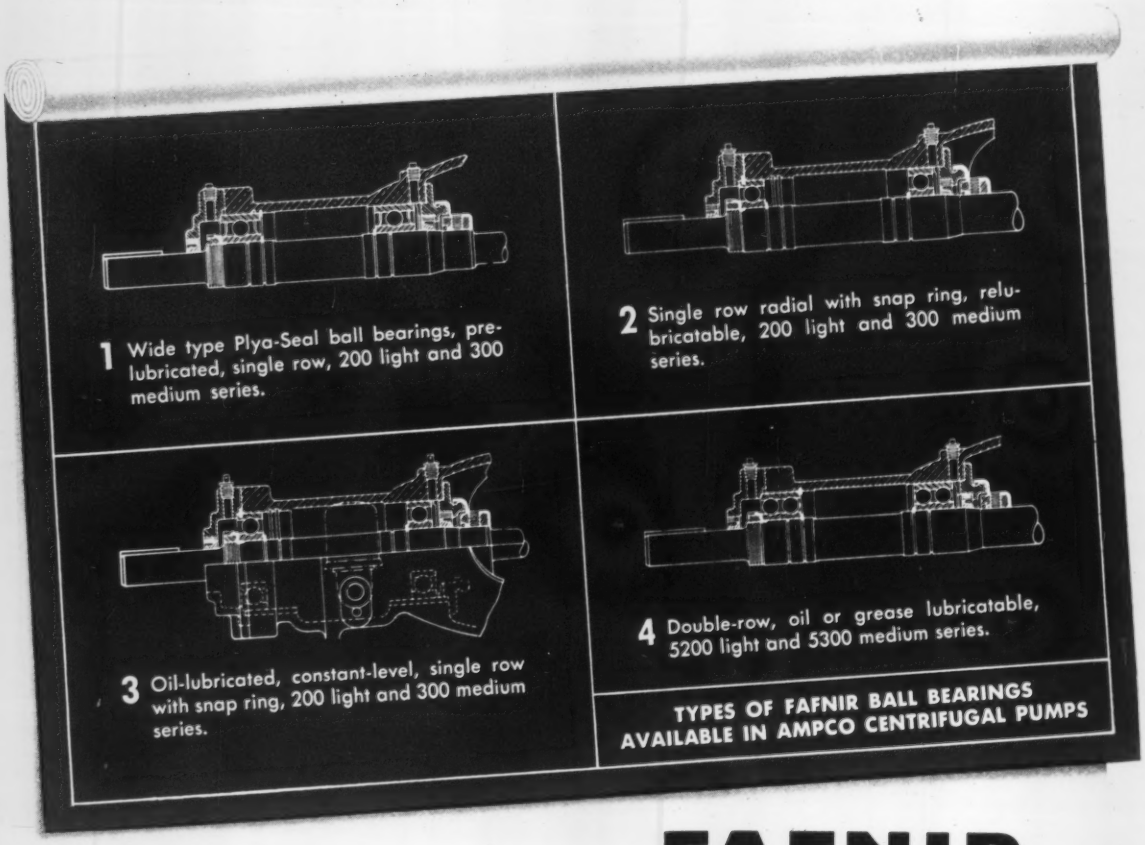


Versatile Ampco single-suction centrifugal pumps are available in sizes ranging from fractional flow to 600 gpm. They are particularly designed for corrosive or erosive fluids.

Centrifugal pumps manufactured with interchangeable parts by Ampco Metal, Inc., of Milwaukee are expressly designed to do jobs that would otherwise call for costly specials. They are also readily adaptable to new pumping requirements.

In designing this versatile pump series, Ampco needed various types of ball bearings. They found Fafnir had "all the answers" — bearings that met diverse size, load, speed, and lubrication requirements precisely.

Chances are, "the most complete line of ball bearings in America" holds the answers to *your* bearing problems. Write The Fafnir Bearing Company, New Britain, Conn.


1 Wide type Plya-Seal ball bearings, prelubricated, single row, 200 light and 300 medium series.
2 Single row radial with snap ring, relubricatable, 200 light and 300 medium series.
3 Oil-lubricated, constant-level, single row with snap ring, 200 light and 300 medium series.
4 Double-row, oil or grease lubricatable, 5200 light and 5300 medium series.
TYPES OF FAFNIR BALL BEARINGS AVAILABLE IN AMPCO CENTRIFUGAL PUMPS

FAFNIR
BALL BEARINGS
MOST COMPLETE LINE IN AMERICA

STEEL
May 12, 1958

Technical Outlook

ORGANICS NUDGING TIN PLATE—New coatings based on soybean and linseed oils stick tightly to black iron, aluminum, and tin, H. M. Teeter, Department of Agriculture, recently told the American Chemical Society. Coated discs can be formed into lids or ends and crimped to a can body without breaking the film, he added. The compound adapts readily to continuous operations.

ALUMINUM-STAINLESS BOND—South Wind Div. of Stewart-Warner Corp., Chicago, has developed a new brazing technique to join aluminum and stainless, or other heat resistant metals. Advantages: The bond is gas and liquid tight, resists temperatures from minus 320° F to plus 400° F. Biggest application will be in heat exchangers for aircraft and missiles.

VACUUM MELTS GROW—Induction vacuum melting equipment is getting larger every year. Inductotherm Corp., Delanco, N. J., reports a New York firm is installing a furnace that will handle a 4000-lb melt and will soon have one with a 5000-lb capacity. Both were made in Sweden.

BLAST FURNACE FIRST—South Works, U. S. Steel Corp. (South Chicago, Ill.) says it will have the first blast furnace blower in the U. S. to be powered by blast furnace gas. Westinghouse is building the 16,000-hp blower, which will produce wind at 125 cu ft a minute. The combustion unit will be integrated with the turbine to conserve space. Installation is planned for January, 1959.

CHECKING PLATING CRACKS—The sensitivity of magnetic particle inspection for detecting cracks which show up in high-strength steel during and after chromium plating decreases as the thickness of the plate increases. An Air Force research report establishes 4.5 mils as the practical limit for effective crack detection. Tests also showed that the depth of a crack is the controlling factor in adequate detection; crack width seems to have little effect.

REACTOR HELPER—A new aluminum alloy, X-8001, will boost reactor efficiency when it is used as fuel element cladding, says Argonne National Laboratory, Lemont, Ill. It contains a small amount of nickel to upgrade corrosion resistance in boiling water, a drawback of previous alloys.

NEW DIE STEEL—Crucible Steel Co. of America has developed a cold work die steel with improved shock resistance and high hardness. Called LaBelle HT, Crucible says the low alloy material has shown 3 to 20 times greater life in cold heading, extrusion, and coining operations, compared with the shock steels previously used.

ANYONE FOR DYSPROSIUM?—Researchers will welcome commercial quantity production of the rare earth dysprosium. Nuclear Corp. of America, Burbank, Calif., lists these possible applications: Nuclear reactors and electronic devices. High melting point (2550° F) and neutron cross section (1100 Barns) make it desirable for control rods. Paramagnetic properties qualify it as a component of ferrites for electronic equipment.

WATER-BASE PRIMER—Ford Motor's Lincoln Div. uses a latex water emulsion paint to prime car bodies. The need arose from the switch to unitized construction: Impossible-to-reach corners and closed box members couldn't be spray painted, so engineers decided on dipping. Regular solvent thinned paints were too great a fire hazard.

TENSILE TOPS—Researchers at Wallingford Steel Co., Wallingford, Conn., are working on a process to push the tensile strength of stainless above its present ceiling of around 350,000 psi. Their aim: 400,000 psi. Although the immediate concern is for missiles and superhot aircraft, regular uses (like tapes for electronic brains, and diaphragms) are in the immediate future.

Metalworking Outlook—Page 39 Market Outlook—Page 117

THE JOB: Turn and polish metal cylinders to tolerances of 0.0002 in. and a surface finish of not more than 2 microinches.

OLD METHOD	NEW METHOD
Semifinish turn in multiple passes on a lathe.	Lathe turn with a carbide cutter—follow it with a diamond tool.
Four separate polishing stages on a converted grinder.	One final polishing operation.

ELIMINATED: THREE POLISHING STAGES

Lathes Trim Finishing Costs

Two pay for themselves in about six months. Reason: The cost of precision finishing was reduced by putting part of the tolerance burden on previous operations

SUPPOSE you had to hold a tolerance of only 0.0002 in. on a cylinder 72 in. long. How would you get quality and still hold down production costs?

The problem was faced by management at Southern Gravure Services Inc., Louisville. Their solution: New lathes that produce the tolerance without leaving the precision work to finicky finishing operations.

Old Way—One of the company's products is rotogravure cylinders for the printing industry. They are made of cast iron, steel, and aluminum. All are copper plated. They weigh 250 to 500 lb. are 4 to 14 in. in diameter, and up to 75 in. long.

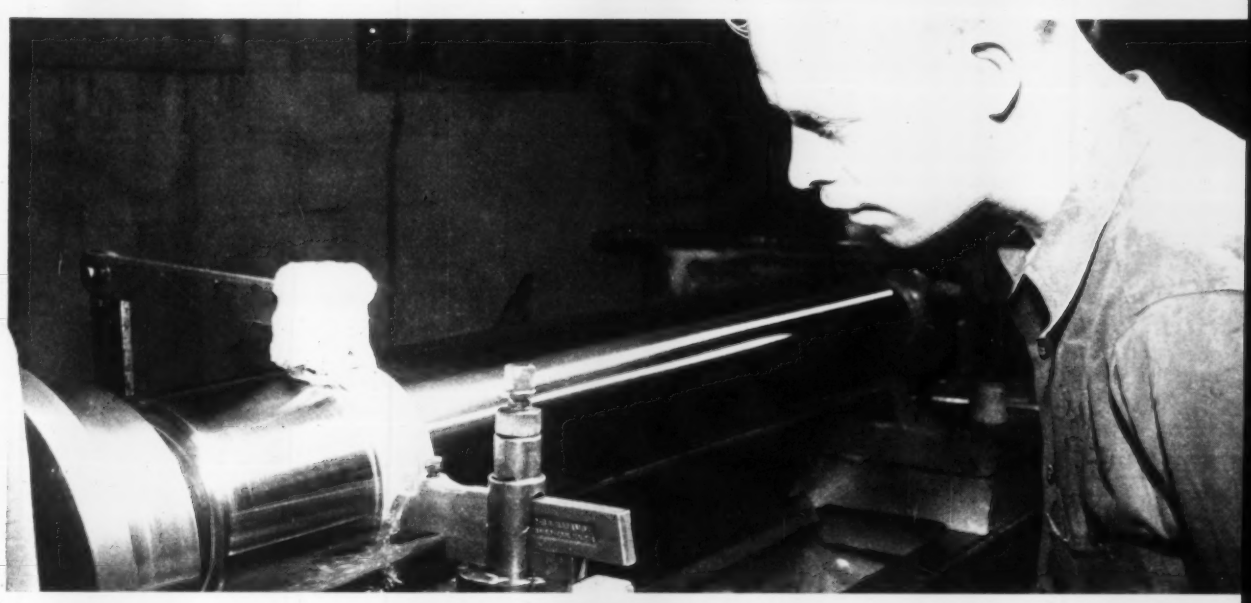
Cylinders used to be processed by turning them to the closest possible tolerance. They were finished on a converted Cincinnati cylindrical grinder in four steps: Starting with a 400 grit wheel on the polishing head, the operator worked progressively through finer grit wheels until he obtained final size and surface finish (nothing over 2 microinches is allowed).

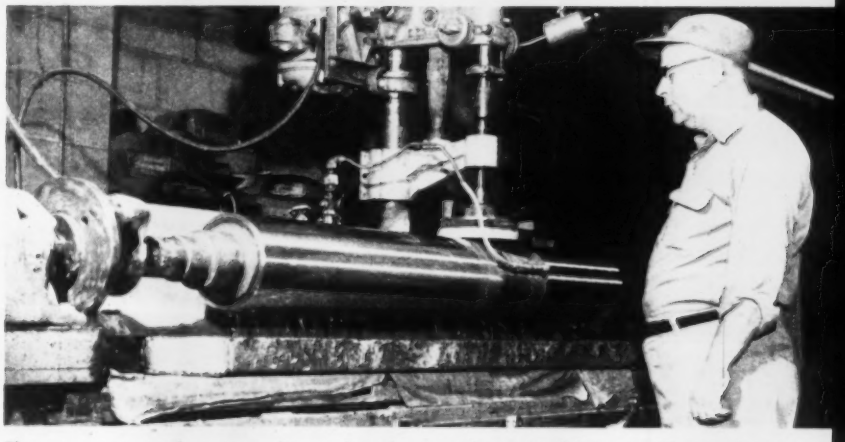
New Way — In shopping for a lathe that would eliminate some of the secondary operations, John Schaefer, plant engineer, says: "We wanted one that would hold a tolerance of 0.0005 in. on a cylinder 60 in. long."

The company settled on 21½ and 18 in. Tray-Tops, built by Cincinnati Lathe & Tool Co., Cincinnati. The big one cost about $9000 —it paid for itself within six months, says Mr. Schaefer. The machine holds working tolerances of less than 0.0002 in.

The first finishing operation now is a pass across the cylinder with a carbide tool at about 1300 surface feet a minute. Tolerances on this pass are held to 0.0002 in.

Next: The operator puts a diamond turning tool in the holder and takes his finish pass. Speed on





The operator watches as a diamond tool nears the end of its cut. The workpiece next goes to the converted grinder (below) for final polishing

SAVED

ESTIMATED

$40,000

ANNUALLY

this cut is as high as the balance of the cylinder will allow. The diamond tool feeds at 0.0037 inch per revolution.

A light application of soluble oil is the cut lubricant.

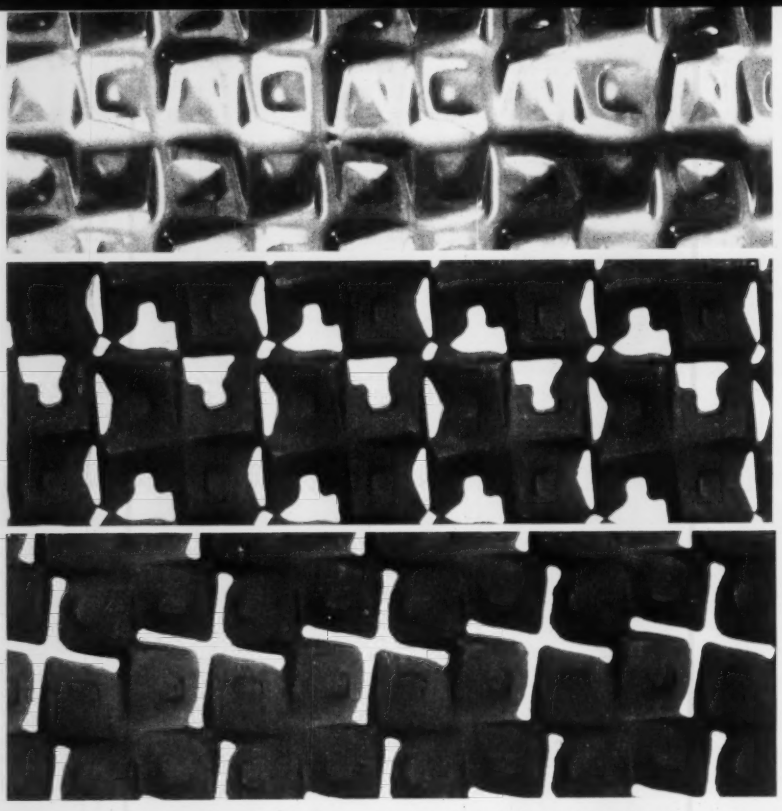
One More—Following the lathe operation, the cylinder goes to the converted grinder for a single polishing step that brings the finish to the required 2 microinches.

Big savings have been realized. Fewer grinding and polishing stones are used; less time is required for the final finishing job; and one grinder operator has been moved to other work.

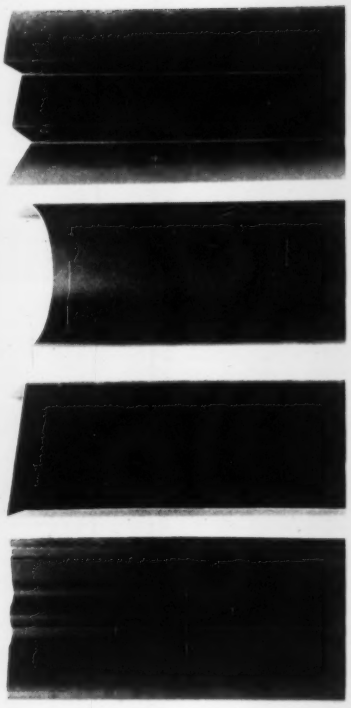
The two lathes are saving the company an estimated $40,000 a year in production costs, Mr. Schaefer says.

COST CRISIS COMPETITION

This article is part of a campaign to help industry achieve lower unit production costs. The accompanying example and others to follow are samples of what the editors of STEEL are looking for in their nationwide search for companies that have brought about important cost savings through more efficient use of capital equipment. Does your company qualify? If so, enter the Cost Crisis Competition. Write to the Cost Crisis Editor, STEEL, Penton Bldg., Cleveland 13, Ohio, for your awards kit.



This is one pattern. The panel at top is rigidized stainless sheet as it comes from the rolls. In the center and below are top and bottom views of the same pattern that has been rolled into a sheet colored by the Permyron process, then highlighted by grinding the color off the high spots



Black stainless steel sheet, colored by the Permyron process, can be severely roll formed without damaging the surface

Stainless Gets New Sales Appeal

Coloring process permits the metal to be severely formed after coloring without impairing the surface. Rigidizing adds strength and resistance to marring

A NEW dimension has been added to stainless steel. A coloring process, called Permyron, makes it possible to do severe forming after coloring without impairing the surface.

Combined with the established method of rolled-in-patterns, the coloring process opens up a host of opportunities for product designers.

To Be Licensed—Electro Metallurgical Co., a division of Union Carbide Corp., New York, developed the process. At present, only black is being produced commercially. Ultimately, a range of colors will be available, says the company.

The process will be licensed to fabricators on a nonexclusive basis. Rigidized Metals Corp., Buffalo, is one of the licensees.

Other Methods—Rigidized Metals has been coloring textured steels with enamels, dyes, porcelains, and anodic coatings. Colors are added after the pattern is rolled in. With the Permyron process, the color can be put on the flat sheet; then the texture can be rolled in.

Electro Metallurgical Co. says it expects to reduce the cost below that of other coloring processes. At present, the company indicates that costs are competitive.

New Process—Basically, the Permyron process involves applying a pigment in a suitable vehicle to prepared surfaces by spraying or roller coating and processing under controlled temperature and atmosphere conditions.

The company says the process does not call for a big capital investment. Standard equipment can be used. The company will not supply the pigments. "They can be put together in the kitchen from easily obtainable materials," explains a spokesman.

Building Panels—The new 52-story Union Carbide Building in New York, scheduled for completion in 1960, will use black textured spandrel panels and column covers to reduce glare and reflections.

The panels will be textured by Rigidized Metals in a wavy-line pattern that strengthens the metal and provides uniform light reflection. Rigidized Metals claims that if the architects had not specified 25-gage rigidized stainless steel, the application would have required 16-gage

Permyron colored stainless wall panels got their first test on Atlas Steels Ltd.'s new administration building at Welland, Ont. Sprayed-on plastic coating which protects surfaces from damage during construction is later stripped off

carbon steel with a porcelain enamel coat or $\frac{3}{8}$-in. aluminum plates ground flat.

Textured panels will have a uniform color over their entire surface. In other applications, highlighting of the surface can be done to produce a variety of pleasing effects.

Rigidizing—The method used by Rigidized Metals differs somewhat from other texturing processes, such as embossing. Reason: The pattern is rolled clear through the metal. The method is one of rolling in which both rolls are patterned and mesh together like gear teeth. It imparts a pattern to the underside of the sheet that is the reverse of the one on the top.

The textured sheet is stronger than a flat sheet of the same gage because rigidizing distributes the metal away from the original plane in all three dimensions, giving it greater strength in all directions.

Highlighting—A variety of effects can be obtained by highlighting colored sheets of rigidized metals. Grinding the color off the high spots on one side to let the natural color of the metal show through gives an effect that is different from the highlighting on the other side.

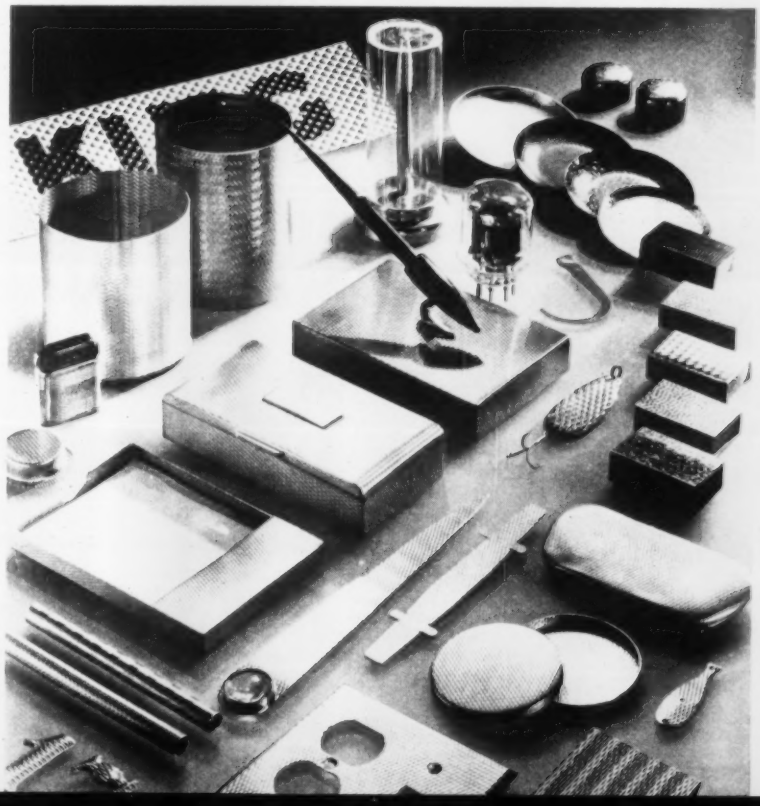
The fabricator has developed 48 separate patterns. By coloring, highlighting, and combination rolling, a myriad of patterns is possible.

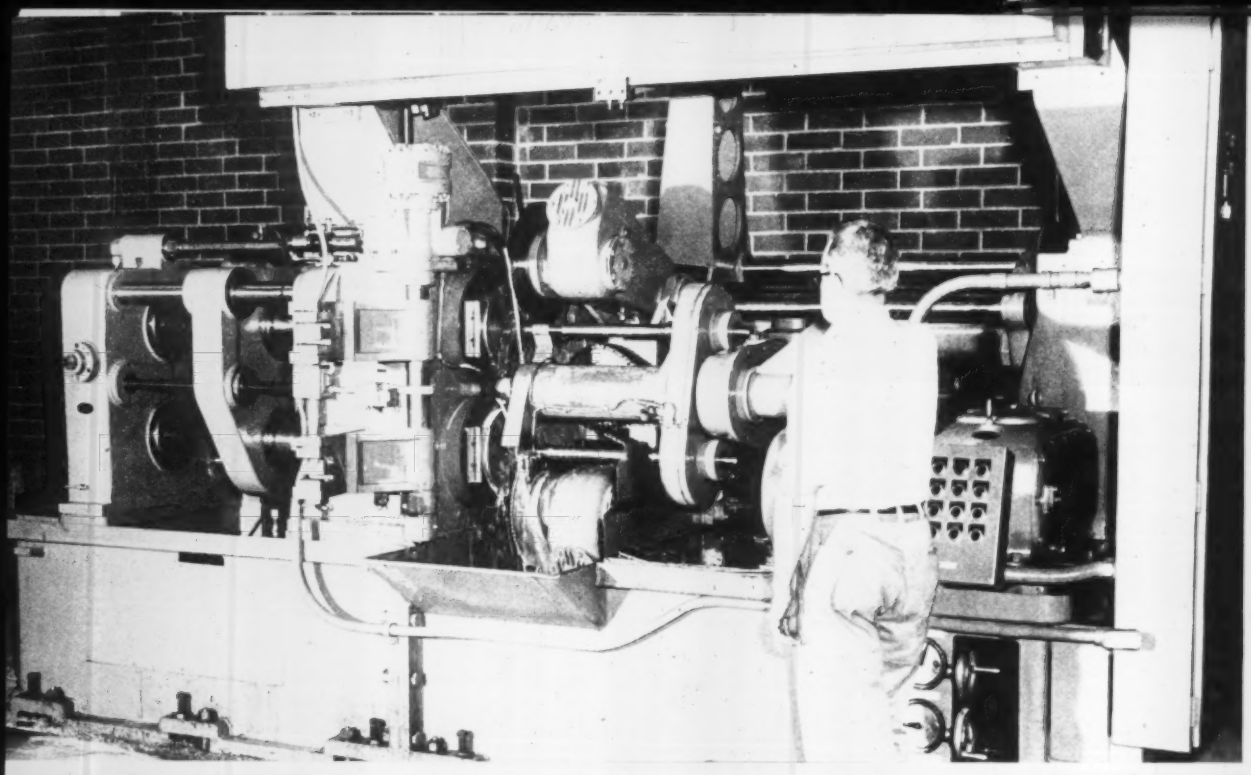
Patterns—There are three basic kinds of patterns in the Rigid-tex line: Decorative, functional, and structural. Many of the patterns combine two of the functions. Example: Nearly all the decorative patterns serve some functional use (as in kick plates, bus seat backs, and appliance trim). Not only are they pleasing in appearance, but they stay that way because scratches, dents, and other mars do not show up as they do in flat metals.

Metal can be rolled with special patterns, such as dimples. When a flat sheet is laid on a dimpled sheet, it leaves a space between the sheets for passage of liquid or gas. Some patterns are nonskid; others reduce friction areas on material handling slides.

Increased surface area makes some patterns valuable in heat transfer applications.

Some of the many parts made from rigidized metals

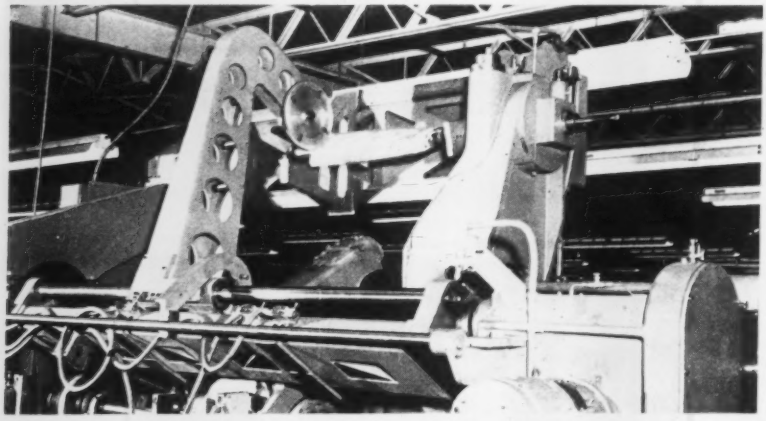




Using both high speed steel and carbide cutters, this milling machine has cut costs about 20 per cent on jet and turbine blades and buckets. Both stainless and Hastelloy parts have been produced. Bar stock feeds from left; it's milled and cut off, and finished parts are picked up and swung out by the arms just left of the work area

New Machine Whips Contouring Job

Designed for jet engine blade milling, it may also solve problems with cams, eccentric shafts, screw forms, and other complex shapes. Like a screw machine, it cuts bar stock



Wheel follows a rotating master and guides (through a mechanical linkage) the positioning of the milling cutters. Plaster templates have been used, but plastic is being considered for longer life

IF PARTS have to be contour milled, why not use the automatic screw machine approach instead of working with cutoff lengths?

Lake Shore Industries, Inc., Cleveland manufacturer of blades and buckets for jet and turbine engines, answered the question with its newly developed Contour-Matic.

Parts had to be cut from bar stock, chucked in a fixture, then milled. During milling, support along the elongated airfoil was often critical.

Answer—The Contour-Matic has solved both problems for Lake Shore. The machine has a completely automatic cycle.

It will turn out a preset number of parts without operator attention. It shuts itself off when the lot is filled, or when it runs out of raw material.

How It Works—Bar stock, usually rectangular, is fed through two

drums that correspond to the spindles on automatic screw machines. The drums turn at about 2 rpm. Stock is held firmly at the "spindle" nose.

Guided by a follower that traces the contour of a master template, a spindle carriage rocks the two milling cutters into, and away from, the center line of the part.

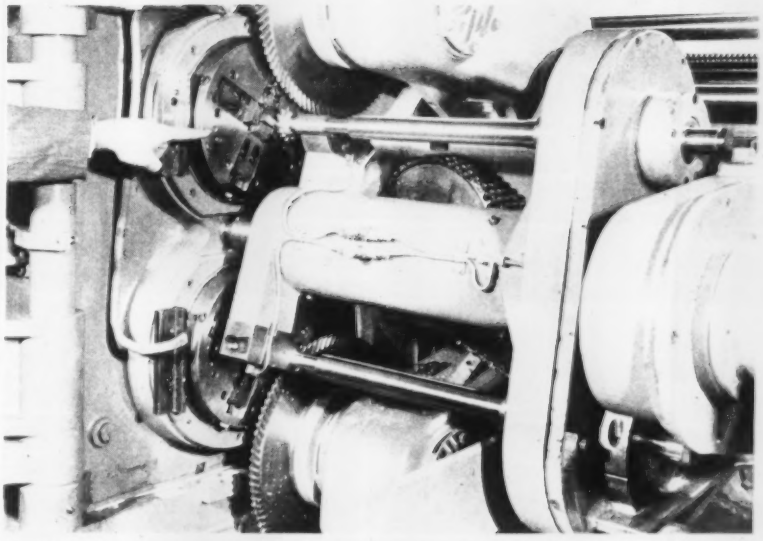
At the same time the rotating workpiece feeds slowly (say, 0.068 in. a revolution) out of the holding mechanism. All milling is done within ⅛ in. of the chuck; this solves the problem of getting adequate support of the workpiece.

Cycle Finish—After the airfoil section is milled, the cutters back away, and the workpiece rapid traverses out of the drums to the cutoff point. Two saws cut the finished part from the bar, and transfer arms pick up the blades and swing them out of the work area.

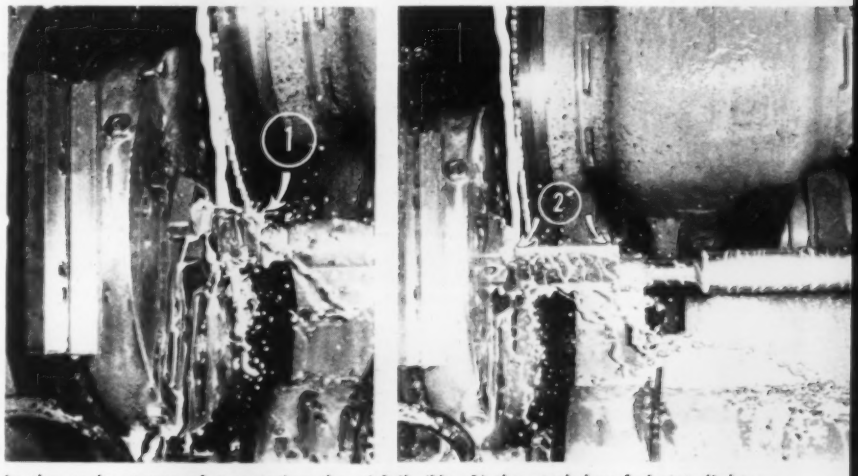
Capacity — The machine will handle bars up to 16 ft long, and ⅛ x ½ in. to 4 x 4 in. in cross section. Parts can be up to 2 ft long with a 4 in. chord.

The first machine was delivered to Lake Shore's Batesburg, S. C., plant some six months ago. Since then, it has ordered an additional ten machines—three of which have been installed.

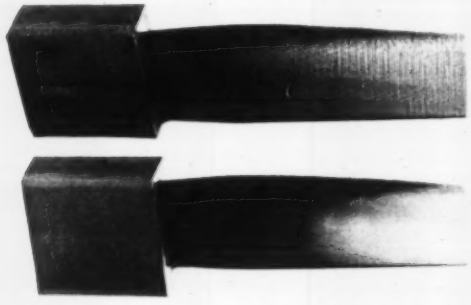
Production rates vary from 4 to 12 parts an hour, depending on the part size and the workpiece material. Costs are running about 20 per cent under those for conventionally produced parts.



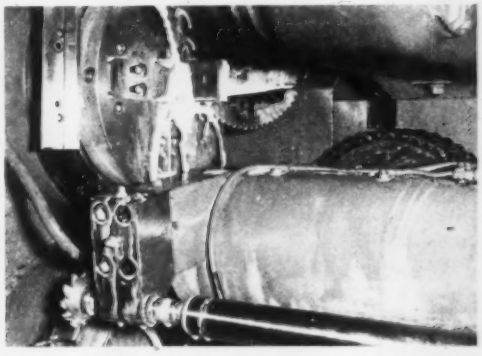
Close-up of the working area shows the drums that hold the parts, the spindle carriage rotated into position for milling, and the two cutoff saws backed out of the way for the milling cycle



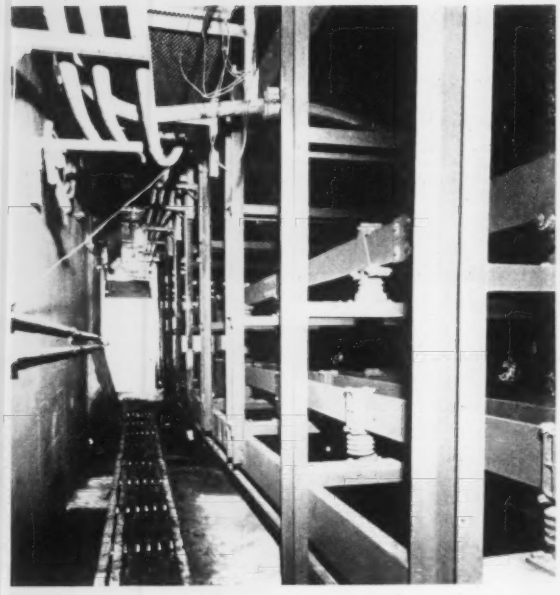
In the early stages of generating the airfoil, (No. 1) the stock has fed out slightly and the rotating cutter is milling behind the blade. Nearing the end of the cycle, (No. 2) the stock has continued to feed and the airfoil is being finished



Part at top shows the airfoil generated in milling. Tolerances are held to within 0.0025 in. total indicator reading. Finished part below has been hand buffed to remove tool marks



With the foil completed, the spindle carriage has rotated the cutters away from the part, and the cutoff saws have gone to work



BEFORE—9 x 11 ft bus tunnel under entry side of strip mill. Note space required for buswork

AFTER—Silicon rubber cables with steel armor replace open bus. Note gain in valuable space

Insulated Cables Save 50% on Costs

Revamping a cold strip mill created a problem in power distribution at Youngstown Sheet & Tube. Silicone rubber cables in a bus tunnel were the answer

MODERNIZATION of equipment often brings about problems involving the relocation of power cables.

That was the case when the Campbell (Ohio) Works of Youngstown Sheet & Tube Co., Youngstown, decided to revamp its cold strip mill and processing equipment to produce coils 72 in. in diameter. (Coil size was limited to 54 in.)

Problem—When the mill was installed in 1937, power for all drives was carried through a bus tunnel under the entry side of the mill.

To modernize, it was necessary to cut into the bus tunnel to install conveyors and material handing equipment. This left an opening of 24 x 42 in. through which the power cables had to pass.

Choices—There were four ways to get the power to the equipment. It was up to Mark Whalen, district electrical engineer at Youngstown Sheet & Tube; Tom Frame, general superintendent of Carlson Electric Co.; and B. J. Mulvey, application engineer for General Electric Co., to find the best way. The alternatives:

1. Overhead with armored cable on racks. (They would interfere with cranes and operations such as roll changing and maintenance.)

2. Standard rubber insulated cables in the tunnel. (They would require intolerable derating because of space limitations.)

3. Bus duct. (It could not carry the required load in the available space.)

4. Silicone rubber insulated cables with steel interlocked armor.

The Solution—By using silicone rubber insulated cables, which can be operated at conductor temperatures up to 257° F, the number of cables needed was reduced. By enclosing the cables with galvanized steel interlocking armor, the need for conduit was eliminated, making the installation relatively easy.

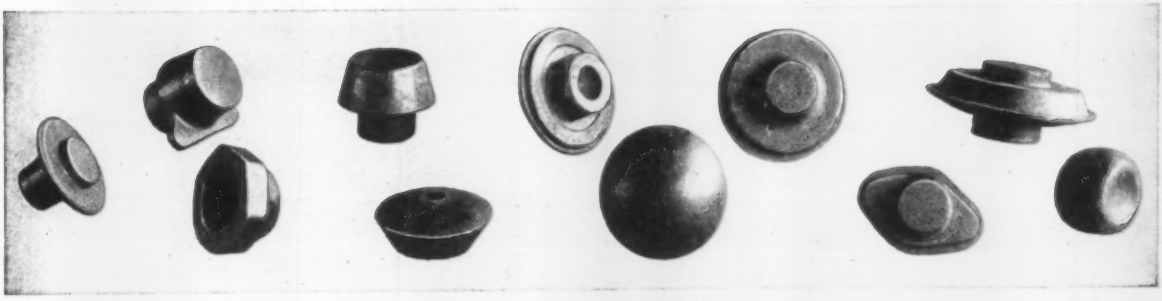
Where the cables pass through the 24 x 42 in. heat bottleneck, they are cooled by fans. This ventilation practically eliminates any mutual heating of the cables.

Other Advantages—The interlocked armor covering makes the cables flexible and easy to pull into place. The original estimate of downtime (four weeks) was reduced to 17 days.

The use of a polyvinyl chloride jacket on the cables practically eliminates maintenance.

Savings—Use of the bus tunnel instead of overhead racks for the cable system resulted in a 50 per cent saving, plus another gain that can't be measured: Tunnel space was reclaimed for the location of electrical control panels and hydraulic pumping equipment.

The re-use of the tunnel eliminated the need for digging new underground space for those facilities and interfering with operations while doing so. Since the roof of any underground space in this area requires reinforcement to support 80,000 lb (the weight of mill products and tractors) costs would have been extremely high.

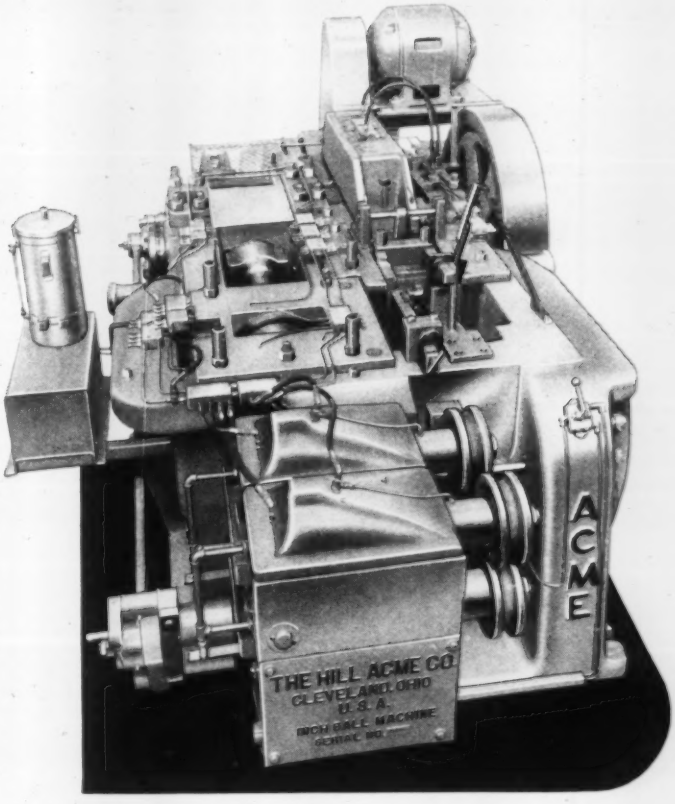


Typical Shapes Produced by ACME Single Blow Forging Machines

SINGLE BLOW FORGINGS
AT 135 PER MINUTE

One man operating this ACME single blow solid die forging machine is producing 135 one inch hard steel balls per minute from 11/16" stock. Automatic feed rolls carry bar stock at proper speed for maximum efficient operation. Adequate safety devices prevent jamming of the die.

ACME solid die forging machines are rated according to the size ball they will forge. Machines are built from 1" to 5" capacity.



Complete information is given in Bulletin SB-57.

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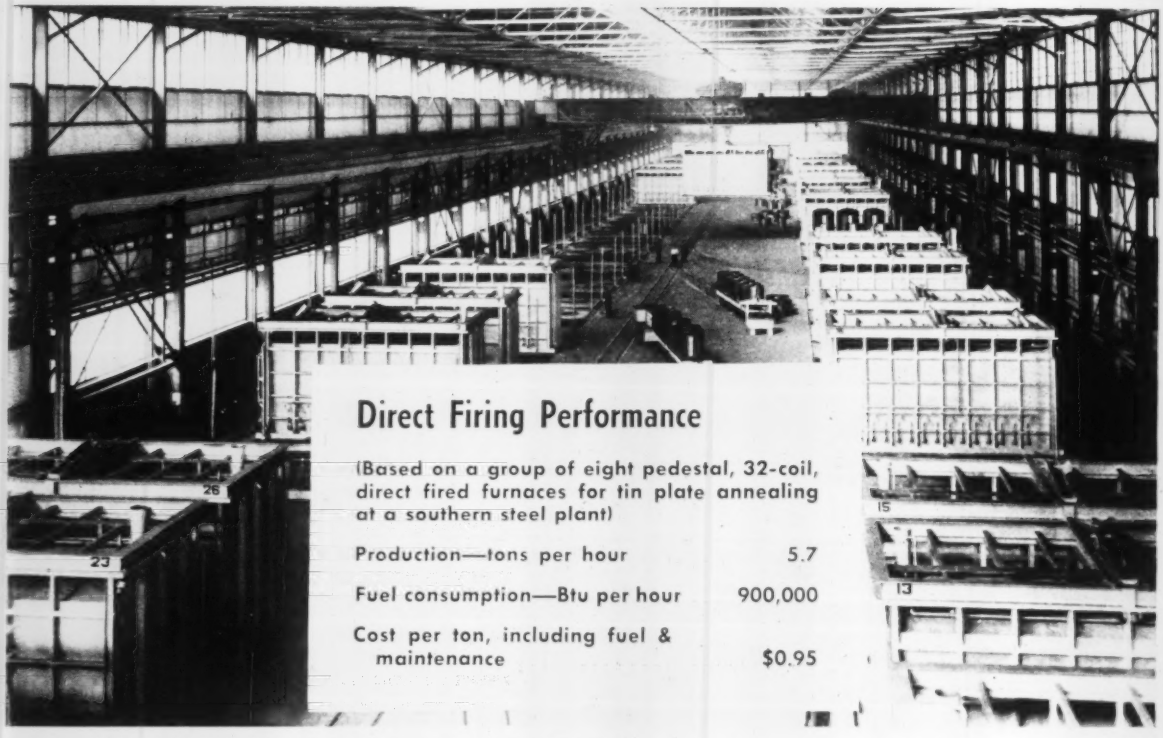
"HILL" GRINDING & POLISHING MACHINES • HYDRAULIC SURFACE GRINDERS • "CLEVELAND" KNIVES • SHEAR BLADES



Direct Firing Performance

(Based on a group of eight pedestal, 32-coil, direct fired furnaces for tin plate annealing at a southern steel plant)

Production—tons per hour	5.7
Fuel consumption—Btu per hour	900,000
Cost per ton, including fuel & maintenance	$0.95

Battery of direct fired coil annealing furnaces in a tin plate mill

Direct Fired Coil Annealing Revives

Operational problems solved. New installations combine baffle type burner with control properties of eductor system. Economies should spur new uses

THE DIRECT FIRED, cover type annealing furnace is showing strong evidence of a comeback. Increased heating efficiency, substantial reduction in maintenance costs, and the development of effective inner cover protective coatings are encouraging mills to take another look at their annealing furnace firing methods.

A leading southern steel plant recently installed a group of direct fired furnaces for tin plate annealing. Each eight pedestal unit holds 32 coils.

Comparison with similar furnaces fired by other methods showed a 60 per cent reduction in the cost per ton of steel annealed.

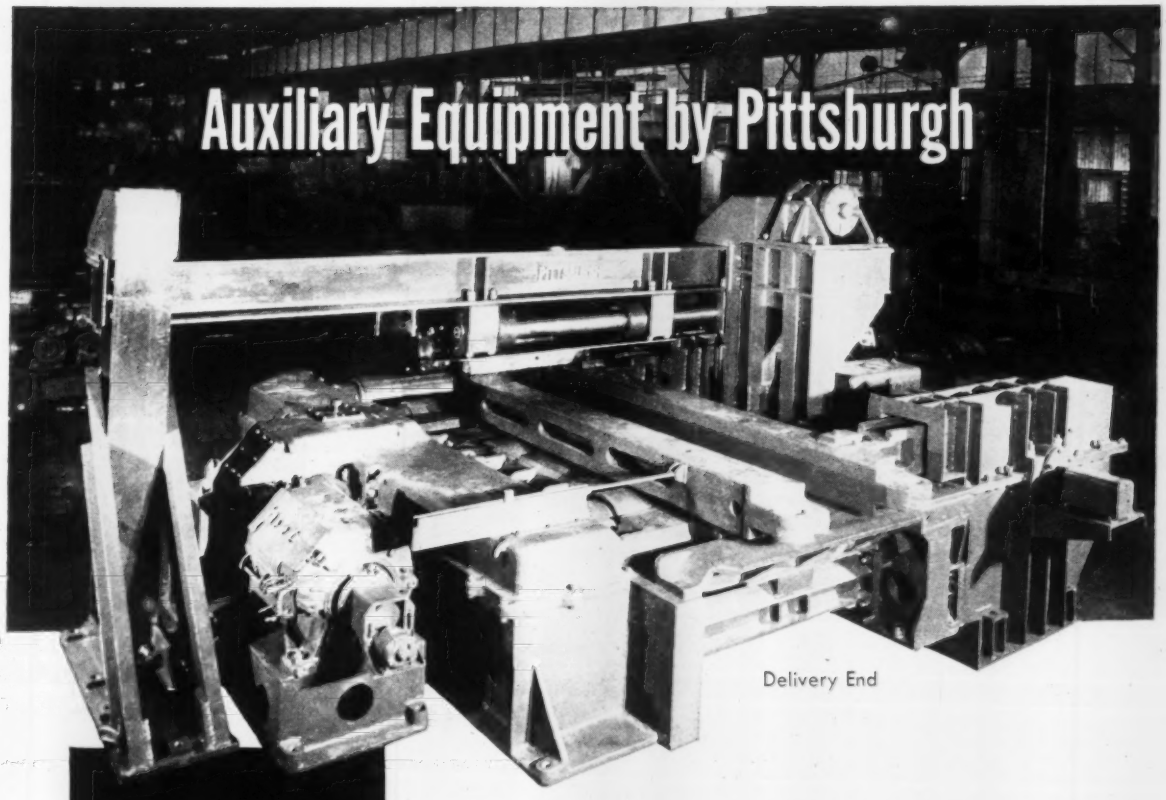
A major east coast user of direct fired furnaces reports that his only major maintenance cost is the semi-annual replacement of burner baffles—about $470 for a typical 32-burner furnace.

Covers Last Long—An aluminized protective coating has raised the service life of mild steel inner covers to 550 heats. The coating is applied by metal spraying over a sand blasted surface.

Annealing bonds the coating to the base metal, giving a pure aluminum surface which oxidizes. It resists further oxidation under furnace operating conditions. The added cost of the inner cover (about $75) is easily justified by increased service life.

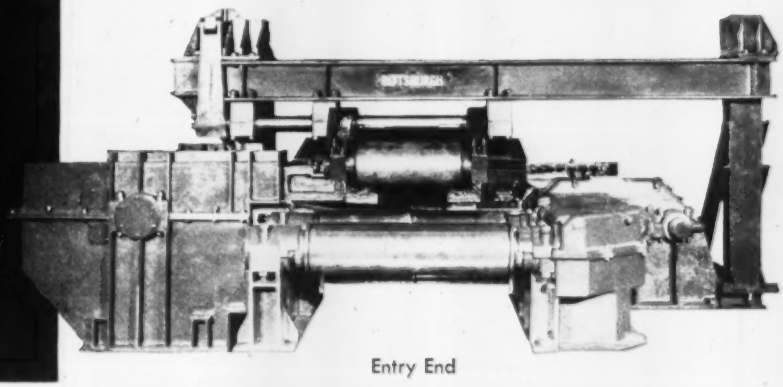
Firing Efficiency—The direct fired furnaces described above were manufactured by Furnace Engineers Inc., Pittsburgh. Their combustion system combines the efficiency of a baffle type burner with the control properties of an eductor system. The manufacturer says this combination gives maximum fuel economy, consistent analysis of combustion products within the furnace, and elim-

Auxiliary Equipment by Pittsburgh



Delivery End

slab scarfer table with holddown roller and adjustable guides



Entry End

This Slab Scarfer Table is a typical example of the wide variety of auxiliary mill equipment designed and built by Pittsburgh Engineering and Machine.

Slabs from the blooming mill are scarfed on all four sides in an adjacent unit thus eliminating 1/64-1/32″ of scale and other surface irregularities.

We can help you with your requirements for primary and auxiliary mill equipment.

"Electric and open hearth steel castings from 1 lb. to 100 tons"

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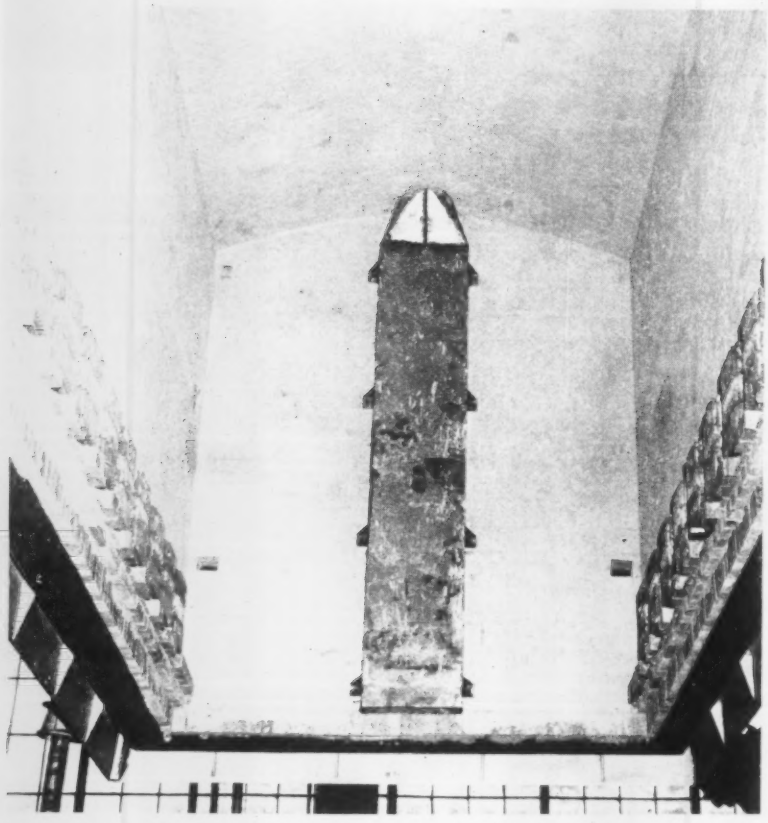


Looking up at the inside of a direct fired annealing furnace bell. Bumps on the side are the baffles that direct flame up the sides of the bell. The eductor tube through which the exhaust gases are drawn is at the rear. The inner cover fits inside this bell

inates direct flame impingement which might cause hot spots on the inner covers.

Fuel gas is introduced into venturi type burners and is fired against a refractory baffle inside the furnace. Flames issuing from the burners are directed upward into the furnace chamber when they strike the baffle, preventing direct impingement on the inner covers. A series of these burners is located around the periphery of the furnace.

The eductor system draws the flame and hot combustion gases back down through the furnace, finally venting them through eductor tubes.

Fuel Fully Used—By introducing a secondary air supply in the burner, a long lazy flame is formed. It gives up a large percentage of its heat as it travels up the furnace wall. Hot gases make two passes through the furnace, and the eductor tubes, heated by the waste gases, radiate additional heat to the stacks.

Such a system makes maximum use of the Btu content of the fuel. It uses radiation heat of the flame and heat transfer by convection as the products of combustion sweep across the outside of the inner covers.

Flame temperatures of 3600 to 3900° F are possible with direct firing, although introduction of secondary air to reduce flame temperature may be necessary to prevent burning of inner covers. The high operating temperatures permit quick cycling of heats.

For Single Stack, Too—The direct firing method has been successfully applied to multiple and single stack coil annealing furnaces. The principles of operation are identical. The only major difference is in the location of burners and eductor tubes.

The economies of multiple stack furnaces apply equally to the single stack. Savings are roughly proportional to the tonnage of steel being annealed.

Housingless Motors

Making the machine house the motor cuts costs, reduces weight, improves appearance

"REPLACE complete motors in machines with the essentials: Rotors and stators," advocates A. S. Bickham, manager of motor design and distribution, Electric Motor Div., A. O. Smith Corp., Milwaukee.

"Many design engineers seem hidebound in their concepts of integrally powered machines," he said at the recent Design Engineering Show in Chicago. He feels that it's not necessary to append a complete package of rotor, stator, housing, controls, and special frame to machine tools.

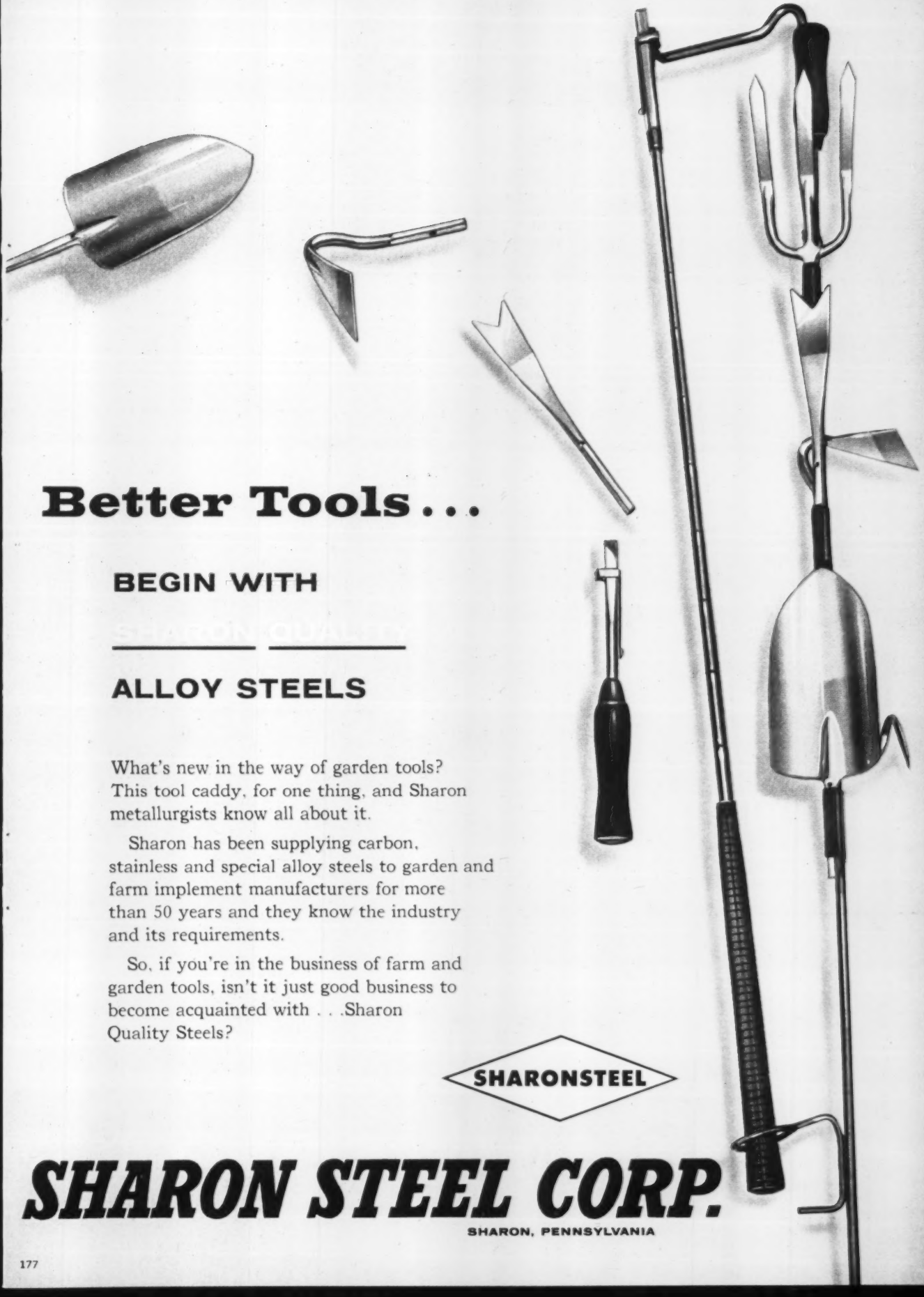
Power packages are integrated in many modern machines. Advantages: Less weight, greater compactness, increased efficiency, improved appearance. In some cases, it means a substantial cost reduction.

No Cure-All—Many manufacturers will always find it best to use the traditional motor package. But the most forward-looking designers balance both techniques before deciding, says Mr. Bickham.

"Built-in motors cost 40 per cent less," says A. S. Bickham, Electric Motor Div., A. O. Smith Corp., Milwaukee

A. O. Smith makes motor "guts" to meet most applications of increment start, high slip, high starting torque, and similar requirements for building into machines. Driveshafts can be built integrally with the motor, eliminating belt or gear drives.

Polyphase assemblies come in ¾ to 150 hp. Some single phase motors run as high as 5 hp.



Better Tools...

BEGIN WITH

SHARON QUALITY

ALLOY STEELS

What's new in the way of garden tools? This tool caddy, for one thing, and Sharon metallurgists know all about it.

Sharon has been supplying carbon, stainless and special alloy steels to garden and farm implement manufacturers for more than 50 years and they know the industry and its requirements.

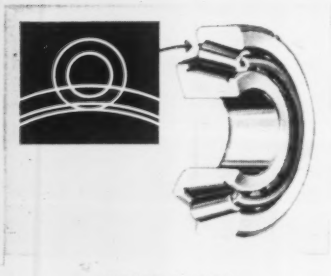
So, if you're in the business of farm and garden tools, isn't it just good business to become acquainted with . . .Sharon Quality Steels?

SHARONSTEEL

SHARON STEEL CORP.

SHARON, PENNSYLVANIA

Harvest time is no time for maintenance!



HIGHER FLANGE IMPROVES ROLLER ALIGNMENT

As shown by the gray area above, the higher flange provides a large two-zone contact area for the roller heads. This greatly reduces wear—practically eliminates "end play". Larger oil groove provides positive lubrication

No one knows the importance of proper timing better than a farmer. Equipment has to be ready *when it's needed!* One breakdown—like a bearing failure—and everybody loses. Lost crop . . . lost money . . . and, for the equipment manufacturer, a lost customer.

That's why so many farm equipment manufacturers insist on dependable Bower Roller Bearings. Basic design improvements like those shown at left have made bearing failure a rarity. In addition, Bower's use of quality material plus close attention to engineering detail has virtually eliminated all maintenance requirements—makes these rugged bearings last longer, perform better.

Whatever *your* product, specify dependable Bower Roller Bearings. Choose from a complete line of tapered, straight and journal roller bearings for every field of transportation and industry.

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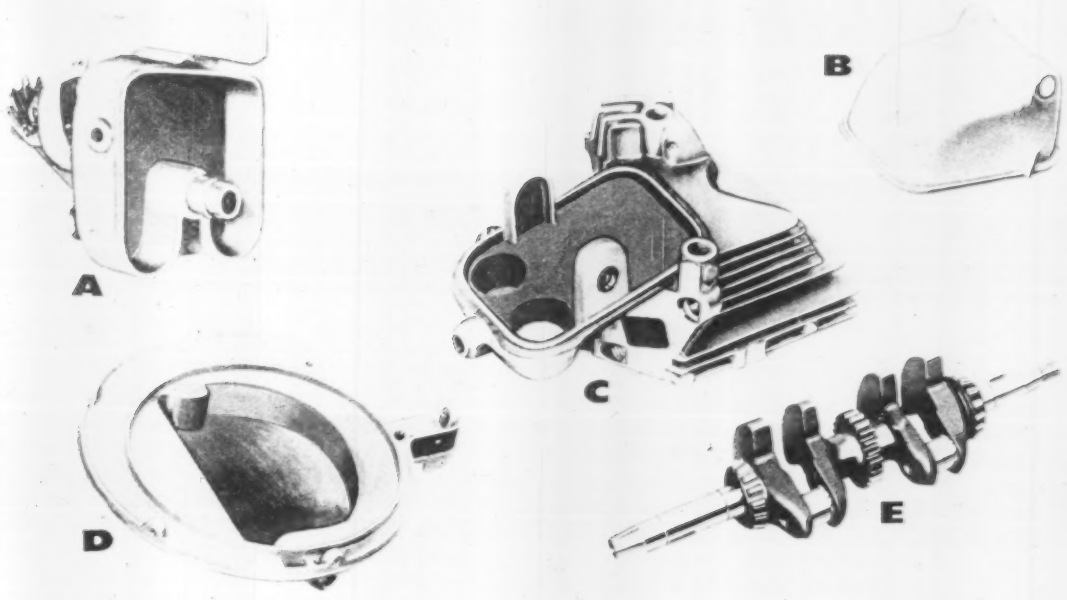
BOWER ROLLER BEARINGS



Some of the small engine parts Continental Motors is barrel finishing in mass production: A, Governor housing; B, rocker box cover; C, cylinder head; D, bearing cap; E, crankshaft

Barrel Finishing Boosts Output

Production increases of up to 500 per cent have been realized in deburring parts for small gasoline engines. Quality and uniformity of finish meet industry standards

MECHANICAL barrel finishing enables Continental Motors Corp., Detroit, to meet tight delivery schedules on large production runs of gasoline engine parts. They satisfy close inspection standards.

A preliminary report on nine months' experience with four barrel finishers reveals these production speedups:

- Deburring a two-throw crankshaft (SAE 1046 forged steel) with integral gear—36 pieces per load, 25-minute cycle, production up 300 per cent.
- Deburring a two-cylinder crankcase and block (aluminum)—six pieces per load, 17-minute cycle, production up 50 per cent.
- Deburring a governor housing (aluminum)—128 pieces per load, 20-minute cycle, production up 400 per cent.
- Deburring gear teeth and flyweight arms of governor flyweight carrier (ductile iron)—320 pieces per load, 60-minute cycle, production up 500 per cent.
- Deburring an overhead valve cylinder head (aluminum with diecast Ampco bronze inserts)—36 pieces per load, 25-minute cycle, production up 300 per cent.
- Deburring a rocker box cover (aluminum)—72 pieces per load, 20-minute cycle, no increase in production. But the part is mechanically finished because the box cover is an exterior part. Uniformity and quality of finish are vital to good appearance.

End Product—The parts are for assembly in ½, 1½, and 3 hp, air cooled, industrial engines weighing about 15, 25, and 40 lb.

At present, the engines are being produced exclusively for military use.

Most of the parts are diecast aluminum. Two exceptions: The crankshaft with integral gear which is SAE 1046 forged steel, and the governor flyweight carrier which is ductile iron.

Finishing—The parts are put into the barrel finishers (made by Roto-Finish Co., Kalamazoo, Mich.) after machine finishing. The mechanical deburring process doesn't harm the microfinishes.

After finishing, the parts go through final inspection and are assembled in the engine units.

Magnet Wire Takes Heat

A new glass-covered magnet wire has been developed for use at temperatures of 428° F (for long-time retention of bond) to 932° F.

Called Silotex-N, the material has one or more layers of glass fiber over the nickel plated conductor. It is bonded with a silicone resin. The combination has high thermal stability, good moisture resistance, and practical immunity to oxidation and scaling. The nickel plated conductor remains free from scaling above 932° F.

For use at 932° F and above, the wire may be wound into a device, and the silicone bond deliberately removed and replaced by an inorganic binder or cement. The material has good dielectric strength, even after losing its silicone bond.

The wire can be impregnated and baked with all types of silicone varnishes, including those requiring high baking temperatures and long baking times. With vacuum impregnation, coils of the wire have good heat-transfer characteristics, allowing greater current densities in the conductor.

The product was developed and is being marketed by Anaconda Wire & Cable Co., New York.

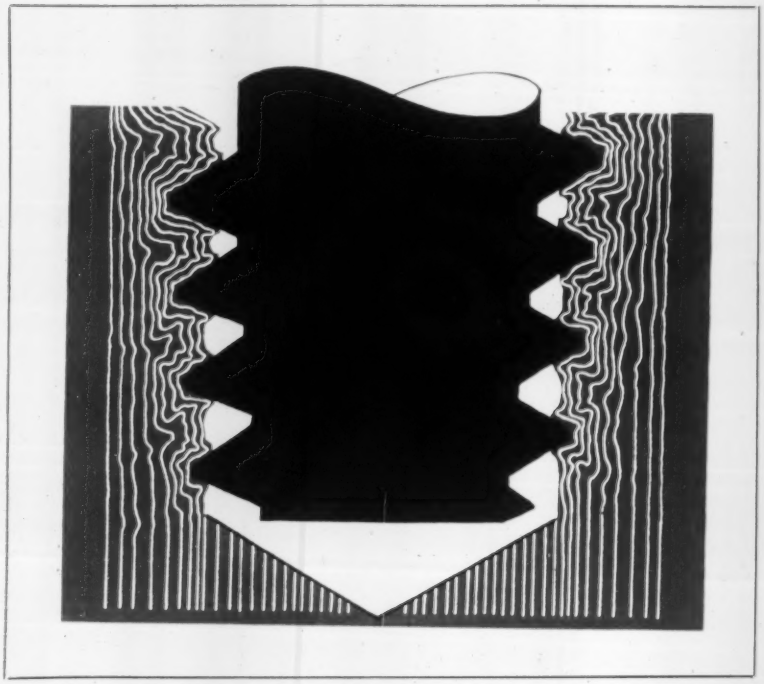
New Aluminum-Clad Wire

Metallurgists at Battelle Memorial Institute, Columbus, Ohio, have come up with a process for coating steel wire with aluminum to a thickness greater than previously possible.

The metals are joined by a strong, ductile metallurgical bond. Brittle intermetallic compounds which are sometimes formed when aluminum is applied to steel have been eliminated.

The process is continuous and lends itself to automation, the developers report. It is described as unlike present methods for coating steel wire in a bath of molten aluminum.

The development came out of a research program sponsored by Copperweld Steel Co., Pittsburgh, which calls the product Alumoweld. The thick coating increases electrical conductivity. Copperweld spokesmen indicate the electrical market will be the first to be cultivated.



Close-up of cold forming tap illustrates main features of the method. Grain lines are deformed but not broken. Threads have smooth, hard surface. Chips and tap breakage are practically eliminated

Tap Cold Forms Threads

New way to tap replaces a cutting edge with a wedge which forces ductile metals into shape. Result is said to be stronger and more accurate than cut types

EXTERNAL THREADS have been cold worked for some time. Only recently have toolmen come up with a way to apply the principle to internal threads.

One version is used by Besly-Welles Corp., Chicago. Its X-press tap cold forms or swages threads in ductile metals like brass, copper, lead, and leaded steels. Here are some of its advantages:

- The tap lasts longer than conventional types.
- Pull and torque tests show that cold formed threads are 15 to 20 per cent stronger than cut threads.
- Tapping speeds are substantially higher than those of cutting taps.

Users—Romort Mfg. Co., Oakfield, Wis., tried a 10-24 cold forming tap on 6061-T6 aluminum in a National Acme RA6 screw machine. It extruded a Class 2 fit with 63 per cent of thread in the hole.

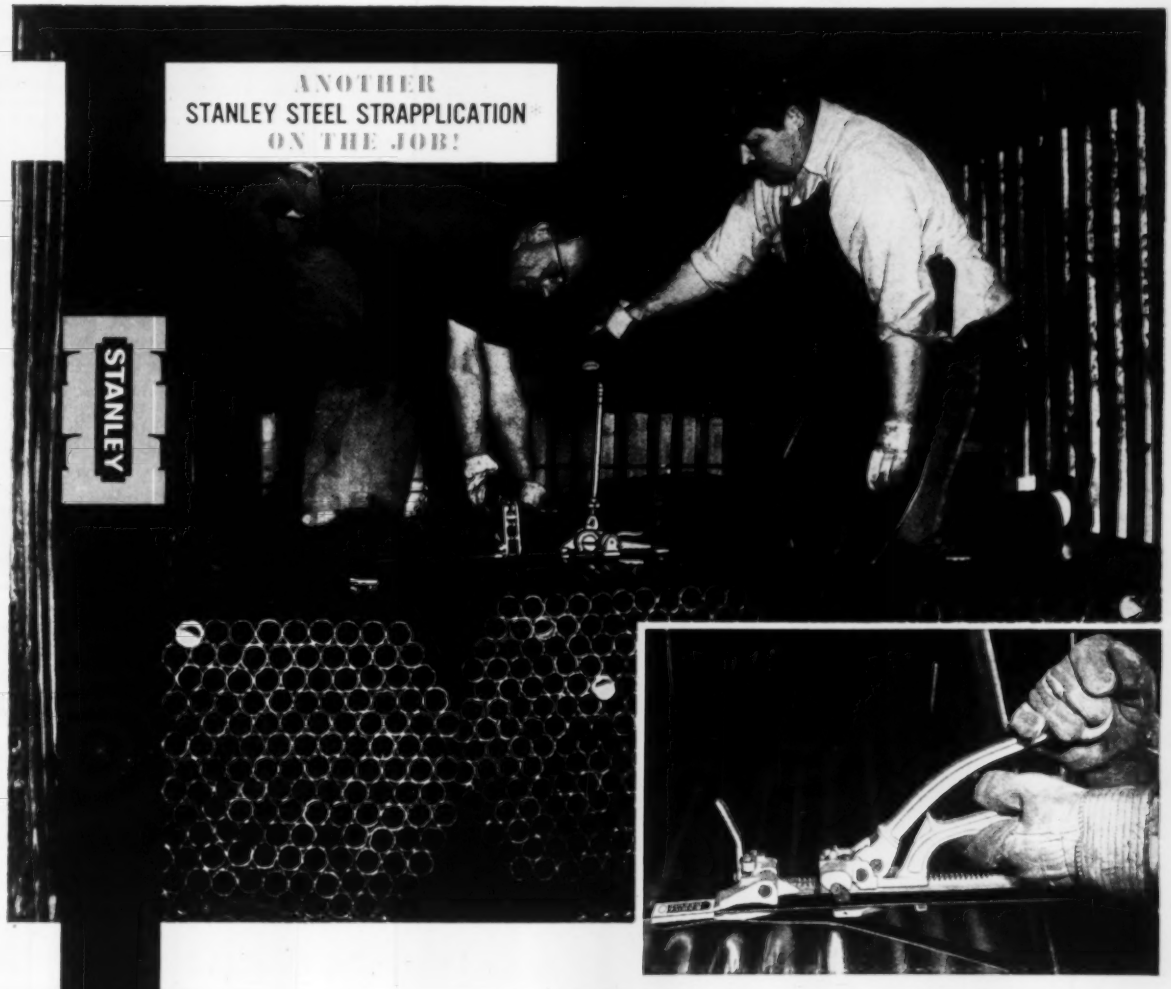
Cutting taps had kept production low; breakage was high. The cold forming tap ran 27,400 pieces and cut cycling time in half.

Other Features — X-press taps, says Besly-Welles, can't be forced into a lead error or be made to cut oversize. Variations in machine and operator pressures have no practical effect on quality.

The only changes are for drill size.

The usual cutting lubricants are satisfactory.

ANOTHER
STANLEY STEEL STRAPPLICATION
ON THE JOB!

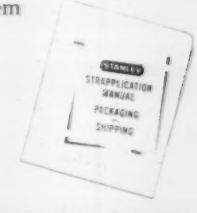


Tubing Company Field-Tests Many Tools . . .

Selects the New STANLEY HDX TIGHTENER!

Competing with tools of 3 major manufacturers in field tests conducted by The Toledo Steel and Tube Company, STANLEY'S NEW HEAVY DUTY PUSHER TYPE TIGHTENER came out on top!

Toledo's Shipping Foreman, Joseph Manusazak, says, "We made the right choice. The smaller base of Stanley's HDX Tightener makes it easy to use on units with small diameters or narrow surfaces. It can be quickly adjusted for use with strapping of different gauges. Since using The Stanley Steel Strapping System — and the HDX Tightener — in packaging our tubing, we've had no complaints of product damage in transit."



WRITE FOR COMPLETE INFORMATION *on The Stanley Steel Strapping System and steel strapping tools and equipment to STANLEY STEEL STRAPPING, Division of The Stanley Works, Dept. E, 1301 Corbin Ave., New Britain, Conn.*

STANLEY **INSURE IT – SECURE IT WITH STANLEY STEEL STRAPPING**

AMERICA BUILDS BETTER AND LIVES BETTER WITH STANLEY

STANLEY

This famous trademark distinguishes over 20,000 quality products of The Stanley Works—hand and electric tools • drapery, industrial and builders hardware • door controls • aluminum windows • stampings • springs • coatings • strip steel • steel strapping—made in 24 plants in the United States, Canada, England and Germany.

Innershield is ideal for applications like the one shown. Head and controls are mounted on self-propelled carriage. Method handles materials from 16 gage to ½ in. thick

Welder Makes Own Shield

New unit uses flux-cored wire that leaves no slag. It will make buttwelds in plates up to ½ in. thick. Lincoln Electric reports handling thin sheets at feeds up to 300 ipm

AN automatic arcwelding process, Innershield, joins steel at speeds up to 300 ipm.

Just announced by Lincoln Electric Co., Cleveland, it features a coiled wire electrode with a self-contained flux that boils up its own vapor shield without leaving any slag. You can see the arc.

Applications—Jobs that need high speeds, good quality, and a minimum deposit of weld metal will benefit most, says Lincoln. Examples: Small, roundabout welds like those on sealed refrigerator units, automotive parts, and small pressure vessels.

Equipment — The welding head controls electrode feed. Power comes from a 400 to 1000 ampere motor-generator. A control circuit for the machine is easily adapted to fixtures or manipulators.

The head has an inching speed control for hot starting. A timer and current control permit crater filling and bead overlapping. Terminals make it easy to add a cycle timer. You can operate the head manually for setups or experimental work.

Limits—Lincoln points out that eliminating externally applied shields contributes to exceptionally high welding speeds. Innershield joins 14-gage lapwelds at a 150 ipm clip; you can get 100 ipm on 3/16 in. plates.

During operation, the arc melts both work and electrode. Some of the flux ingredients vaporize in the arc, shielding it from the air. Other parts go into the molten pool to act as a flux or deoxidizing agent.

The equipment, including power source, costs around $2500.

Alloy Works at 1800° F

A new superalloy that exhibits good strength at white-hot operating temperatures in rockets, missiles, and jet engines has been developed by Westinghouse scientists.

Known as Nicrotung, the material is expected to raise the operating temperatures of jet engine turbine blades to 1800° F. Principal constituents are nickel, chromium, and tungsten.

Initial tests show these properties: The ability to be cast into intricate shapes, oxidation resistance, stress-rupture strength, ductility.

Breaking strength at room temperature is about equal to that of a good grade of structural steel. But at 1800° F, it can withstand a stress of 22,000 psi for 100 hours.

Nicrotung is being produced on a pilot plant scale at the Westinghouse materials manufacturing department at Blairsville, Pa.

The alloy is the product of Westinghouse's approach to material development which calls for predesigning materials from basic theoretical information rather than cut-and-try methods.

Bronze Has High Strength

Chase Brass & Copper Co., Waterbury, Conn., has developed a corrosion resistant, nickel silicon bronze alloy that has high yield and tensile strength at elevated temperatures.

Called Silnic Bronze, the material is available in soft, cold forming, and hard tempers. It can be age hardened for highest strength, hardness, and electrical conductivity by heating at 900° F for 90 minutes.

Comparative tests on ½-13 x 4 in. cold headed, roll threaded American Standard bolts showed the nominal proof load for a Silnic Bronze piece to be 8000 lb. Type B Silicon Bronze shows a proof load of 5000 lb, says Chase Brass.

The alloy is composed of 97.5 per cent copper, 1.9 per cent nickel, and 0.6 per cent silicon. Rods and bars are produced in a variety of cross sections and dimensions in straight lengths. Round, rectangular, and square rolled shapes are available in coil form. Drawn wire also may be obtained.

facts about LEDLOY* FREE-MACHINING STEELS

Considerations in the Use of Inland Ledloy Steels to Reduce Machining Costs*

"Most metalworking plants strive to trim costs as well as metal—so long as quality standards can be maintained. But it takes a lot of ingenuity and 'know how' to neatly balance all three factors: costs, machining efficiency and quality."**

INLAND LEDLOY free-machining steels should be thoroughly investigated in efforts to achieve this end.

You should consider LEDLOY STEELS . . .
. . . if you are presently producing a product from regular carbon steel that requires machining.

The Inland process of adding lead to any grade of steel phenomenally improves machinability without materially affecting other properties. The normally specified physical properties required for a particular application are retained in the equivalent Ledloy Steels. The only characteristic that is affected, and to a marked degree, is the steel's machinability.

Forgings made from Ledloy, for example, can be heat treated and forged in exactly the same manner as similar non-leaded grades of open hearth steels, yet will machine up to 50% faster. A switch to Ledloy for forgings will also result in a superior finish on the machined part.

Whatever grade of steel you are currently using for your products, if machining is an important part of your fabricating process, a change to a similar Ledloy grade can cut your total machining costs appreciably.

You should consider LEDLOY STEELS . . .
. . . if you are presently using a non-leaded machine stock.

Ledloy Grade A, the most widely used leaded steel grade, machines from 25% to 55% faster than regular free-machining steels and yet retains all the desirable characteristics of the non-leaded grade of comparable base analysis.

The precise quality control measures used by Inland in the production of Ledloy Steels result in a surface that is superior to similar non-leaded machining steels. Tolerance control is easier and the completed part has a finer, smoother finish.

You should consider LEDLOY STEELS . . .
. . . if you are presently machining parts from free-machining brass.

Ledloy Grade B, a steel that is somewhat more costly than Grade A, has been used successfully as a substitute for free-machining brass in a number of applications. The basic material cost of Ledloy Grade B is only about half as expensive as brass, yet approaches brass in machinability. However, the higher scrap return on brass, over leaded steels, must be considered in estimating overall cost savings.

If machinability rather than corrosion resistance or non-magnetic properties is the primary reason for the use of brass in a given application, Ledloy Grade B should be seriously considered for its cost-saving advantages. Because leaded steels weigh less than brass, they yield more parts per pound. Then, too, the greater strength of leaded steels often makes possible the redesigning of a machined part to obtain material savings with no loss of strength.

GENERAL CONSIDERATIONS

1. **Amount of Machining.** Ledloy Steels were developed by Inland to provide a more efficient machining steel. The advantages of their use are in direct proportion to the amount of machining performed on parts made from them. The greater the amount of machining, the greater the possible savings using Inland Ledloy Steels.
2. **Capacity of Equipment.** If your present equipment is not being run at full speeds or feeds, considerable savings can result by using Ledloy grades and taking advantage of their much greater machining rate. Increased speeds and feeds are possible, and with reduced tool wear.
3. **Surface Finish.** If finish is important in the machined product, Ledloy Steels can be beneficial. The superior finish resulting from the use of Ledloy Steels has made possible the elimination or reduction of costly additional processing in a number of applications.
4. **Tool Life.** If the machining operation wears tools excessively, necessitating frequent changes, or if tool cost is relatively high, Ledloy Steels can effect significant savings. Because of its lower friction component, plus the fact that Ledloy provides better chip formation, tool-edge build-up is cut to a minimum when machining Ledloy steels. Ledloy Steels actually lubricate the tool face, reducing heat generated and minimizing tool wear. This means greater production per tool change and decreased costs.

Many grades available—Inland Ledloy free-machining steels are available in a wide range of standard carbon and alloy grades in bar form. Ledloy free-machining plates are also produced.

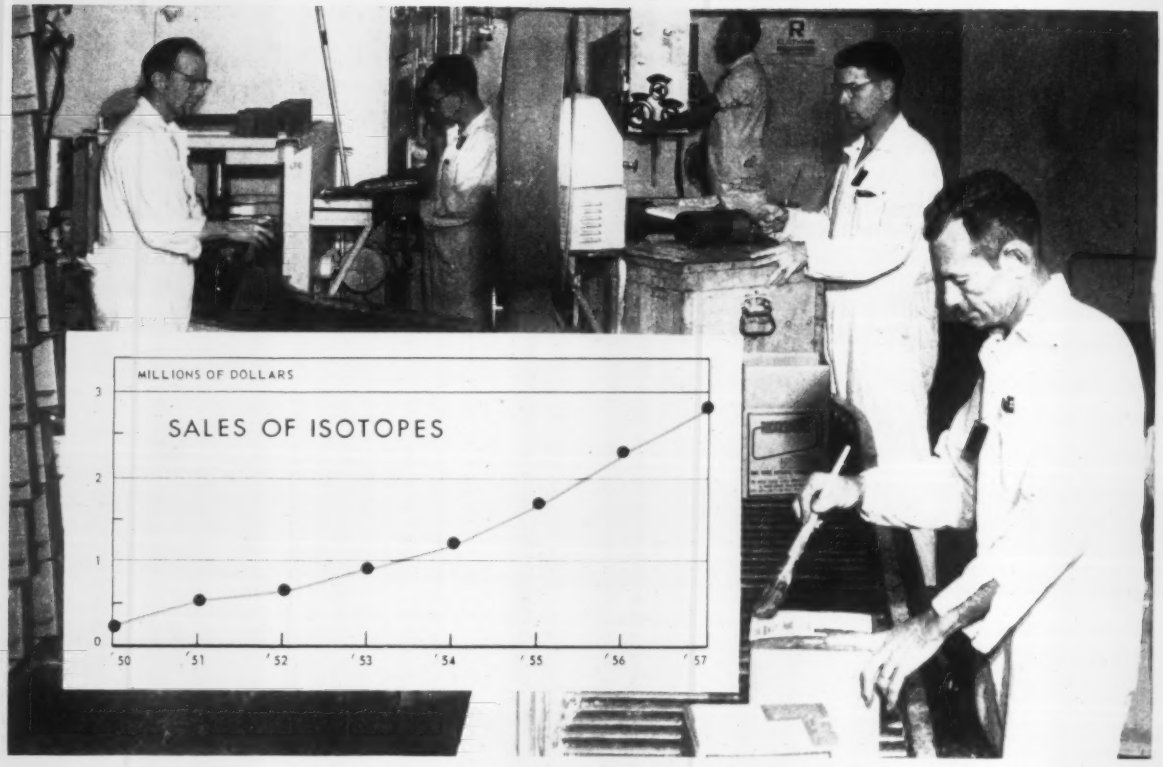
If your product requires machining, it will pay you to get all the details on Inland Ledloy . . . the original leaded steels. Ask your cold-drawer about them today, or write Inland Steel Company, 30 West Monroe Street, Chicago 3, Illinois, for the interesting booklet, "Properties of Inland Ledloy Steels."

***Iron Age Special Feature #10, July 25, 1957. "How to Get More for Your Metalworking Dollar" (Machining Ferrous Metals)*

INLAND STEEL

Sales Offices: Chicago · Milwaukee · St. Paul · Davenport
St. Louis · Kansas City · Indianapolis · Detroit · New York

Ledloy Steels
the world's most machinable
*Reg. Trade Mark



Increased sales of isotopes have been keeping these workers busy at the Atomic Energy Commission's packing center, Oak Ridge, Tenn.

Isotopes: Industry's New

Last year, they accounted for an estimated $500 million in savings. Metalworking firms have proved their value and are developing new production, inspection, and research uses

ADD the radioisotope to the list of cost cutting tools you can't afford to be without.

Industry is saving an estimated $500 million yearly by exploiting its many talents on such diverse jobs as inspection, material conservation, and research. Dr. Willard F. Libby, AEC commissioner, thinks it has the potential to cut costs $5 billion annually within five years.

What It Is—A radioisotope is an unstable version of an element. It emits radiations (chiefly alpha and beta particles and gamma rays) as it disintegrates.

Most applications involve the penetration, reflection, or tracing of radiations.

Penetration—Radiography (a way to get a picture of the inside of a material) is an example. Radiations pass through the thing being investigated, striking a photographic plate. Voids can be spotted because greater amounts of radiation get through such areas.

Sources for such jobs are much cheaper than they used to be. Take cobalt 60: You can buy the equivalent of $20,000 worth of radium (the first source used) for about $100.

Reflection—The composition, density, and thickness of a material determine the amount of radiation it reflects. The thickness gage is an example. Any change in reflection is proportional to any change in thickness.

The significance of this inspection tool is pointed up by a case history from a plant that makes cold-rolled sheets. It found that operators tend to process on the heavy side of spe-

Radioisotopes Used in Metalworking

Research

- Radiation pattern from a radioactive firebrick lining shows wear.
- Materials placed in a radioactive solution show early corrosion patterns.

Production

- Radioisotope instruments measure flow of coal and crushed ore in unrestricted pipes.
- Thickness and density gages are widely used.

Inspection

- Regular inspection of plant piping with a portable gage to measure wall thickness.
- Radiographic inspection of such things as welds and castings.

Work Horses

cifications to play it safe, says J. E. Reider, Industrial Nucleonics Corp., Columbus, Ohio. The radioisotope thickness gage makes it possible for them to work on the light side.

In one year, the plant saved $180,000 in producing 200,000 tons, even though its yield increases were only 0.71 to 0.85 per cent.

Tracing—This is one of the popular applications. Materials under study are tagged by making them radioactive; then they are traced with instruments. The technique is used, for example, to study the wear of piston rings in auto engines.

Tracers also used to study the exchange of iron atoms between molten iron and a slag containing iron oxide, the mechanism of metal oxidation, the action of detergents in removing materials from metals, the mechanism of surface treatment, and the extrusion theory.

Restrictions—The possession and use of radioisotopes are limited to organizations and individuals that have the training, experience, and facilities for safe operation.

The Atomic Energy Commission governs a licensing system that is based on the radiation protection standards of your facility.

To obtain a license you must indicate the type and amount of radioisotope desired, proposed applications, and the training and experience of the person who will be responsible for use of the material. You must also show what types of radiation instruments and other facilities you have to protect personnel against radiation.

Licensing requirements have been published in the *Federal Register* (Machinery and Allied Products Institute Bulletin 3357), Sections 30.71 and 30.72, as part of the Code of Federal Regulations.

A license is required for all by-product radioisotopes not exempted by the general license defined in the Atomic Energy Act of 1954. The license specifies the quantity and type of isotope which may be possessed.

Many industrial suppliers of standard equipment will help you secure the license. After that, your facilities will be inspected every six months.

Safety Measures—Standard equipment does not use a potent source of radiation. One commercial supplier commonly uses strontium 90 or krypton. A normal concentration is 10 millicuries—10 millionths of the radiation given off by 1 gram of radium.

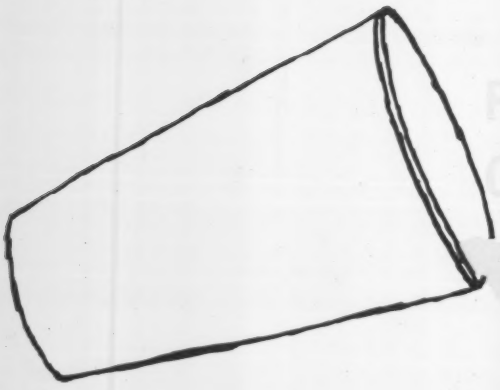
But safety precautions must be taken. John Born, B. F. Goodrich Research Center, Cleveland, states: "The complexity of the techniques used to prevent radiation hazards depends upon the amount of the isotopes and the characteristics of the radiation emitted."

A safety program involves four factors: Design of equipment, training of operators, type of inspection equipment, and procedures to insure protection.

Equipment Classification — Two types of radiation equipment are used: Measuring instruments to obtain information or results and monitoring instruments to detect radiation for the protection of personnel.

Geiger counters and ionization chambers are typical measuring devices. Personnel monitoring equipment includes such things as film badges and pocket dosimeters. Badges are normally used to measure the weekly accumulation of radiation exposure; pocket dosimeters determine daily exposure.

• *An extra copy of this article is available until supply is exhausted. Write Editorial Service,* STEEL, *Penton Bldg., Cleveland 13, Ohio.*



How THE HOUSE OF STAINLESS Helped Coffee Dispenser Manufacturer Add Service Life and Improved Appearance to Product

Photo, Courtesy IVI Products Corporation, Hammond, Indiana

IVI engineers were confronted with a problem created by the abuse and wear of every-day use given the bottom section of their fresh brew coffee dispensers. To provide the protection needed, they considered adding a narrow metal strip.

Recognizing this as a natural application for stainless steel, they asked the CSS sales representative for his recommendations. Since spill from the cup receptacle also detracted from the appearance of the product, he suggested that a stainless steel panel to cover the entire trouble area would be most practical. He further recommended the use of Rigidized stainless steel.

This material gave them the strength and scratch-resistance needed—plus important bonus benefits. Corrosion resistance. Ease of cleaning. And enduring beauty, with dimensional effects possible only with a patterned surface.

All of us at The House of Stainless are always ready to help you utilize the benefits inherent in stainless steel. It's more than just across-the-table discussion. It can mean help in material selections. Or it may be assistance in adapting your present equipment to the use of stainless. In short, this service is as broad and inclusive as your particular needs demand—backed up by our complete warehouse stocks or, where desirable, direct mill shipments from the leading stainless steel producers.

The House of Stainless
CSS STEEL AT YOUR SERVICE

CHICAGO STEEL SERVICE COMPANY

Kildare Avenue at 45th Street, Chicago 32, Illinois • Mailing Address: P.O. Box 6308, Chicago 80, Illinois

Milwaukee District Office: 757 N. Broadway, Milwaukee 2, Wisc. Telephone: BRoadway 3-7874
Sales Representatives at Bloomington and Rockford, Illinois • Indianapolis and South Bend, Indiana
Davenport, Iowa • Grand Rapids, Michigan • Minneapolis, Minnesota • Appleton, Wisconsin

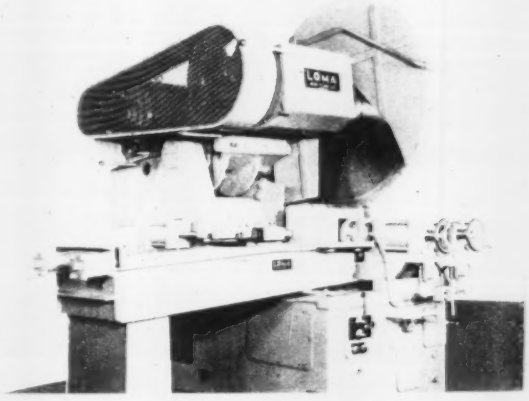
YOUR DEPENDABLE SOURCE FOR BOTH CARBON AND STAINLESS STEEL

Automatic Circular Saw Cuts Large Aluminum Billets

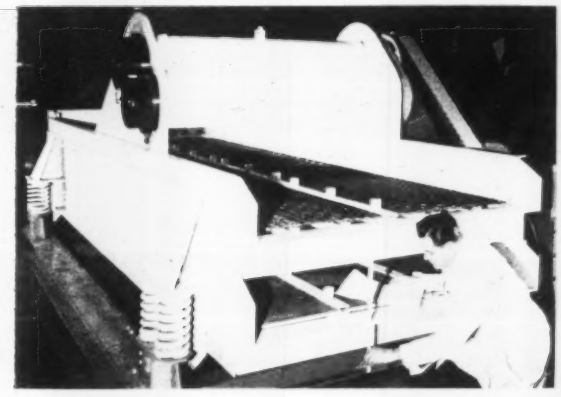
Large aluminum alloy billets can be cut quickly with close length tolerances and smooth surfaces by this automatic cold saw. It is designed to cut billets up to 21 in. square or 23 in. round. The saw blade is 66 in. in diameter and operates at 6000 fpm.

The machine has a tilt arm, the blade moving downward to make the cut. Risk of chatter during the cut is eliminated, feed pressure being taken by the housing. Feed speed is steplessly adjustable. Chips and coolant are carried away from the operator and are disposed of through an automatic conveyor.

By operating the saw in conjunction with billet handling equipment, automatic cycling is possible, and billets up to 15 ft long can be handled. *Write*: Loma Machine Mfg. Co. Inc., 114 E. 32nd St., New York 16, N. Y. *Phone*: Murray Hill 5-6410



Vibration Screen Requires Little Headroom



Heavy duty, Straightline horizontal vibrating screen, CL-Model 58, is designed for de-watering, washing, and sizing a wide variety of materials.

Where headroom is limited, the screen can be suspended by cables or mounted on the floor—or a combination can be used. Centrifugal force and unbalanced shaft vibrators provide high intensity motion.

Screen decks are bolted to side plates. When a deck has to be replaced, it can be removed easily without removing the entire screen frame.

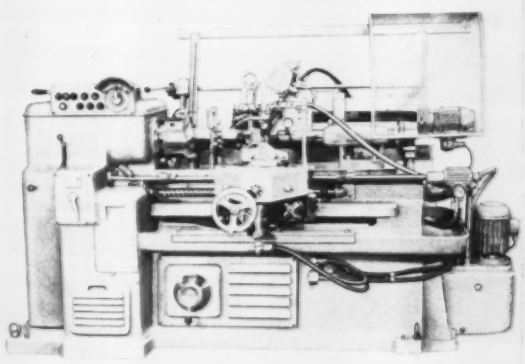
Units are made with single or double decks in 15 sizes ranging from 4 x 8 ft to 6 x 16 ft. All screens are equipped with snubbing devices that limit motion during acceleration and deceleration. *Write*: Dept. PR, Link-Belt Co., Prudential Plaza, Chicago 1, Ill. *Phone*: Randolph 6-7790

Threading Lathe Has Single Chucking Operation

Accessories are designed integrally with the basic machine in Man-Au-Cycle, Model 13-36, automatic threading lathe. It is capable of tracing, turning, facing, cutting off, and automatic cycle threading—all with a single simplified chucking operation.

Need to chuck the workpiece only once guarantees concentricity even when holding on rough diameters. Single point tooling for all operations results in fast, economical, precise production.

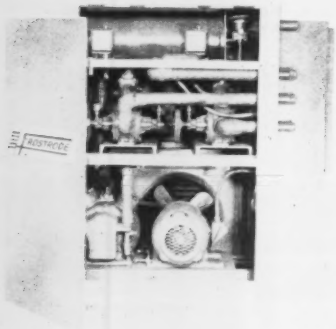
Tracing is performed internally and externally from a master, which can be a duplicate of the workpiece. Movement of the slide is supported by ways parallel to the axis of the work. This permits complete tracing access to the full swing over the bed of the machine. *Write*: Man-Au-Cycle Corp. of America, 132 54th St., Brooklyn 32, N. Y. *Phone*: Hyacinth 2-6560



NEW PRODUCTS and equipment

Unit Cools Two Fluids

A compact, dual purpose cooling unit for use with all types of machine tools is designed to handle any two fluid cooling jobs—hydraulic fluids, coolants, or gear lubricants.



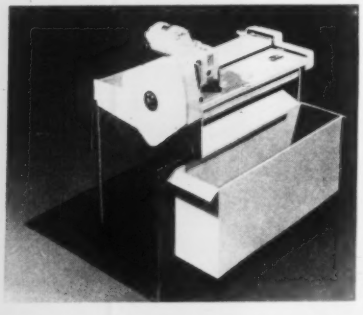
The savings effected by a two functions in one unit is about 30 per cent in cost and 50 per cent in floor area.

One efficient refrigerating unit handles the job. Separate controls for each cooling circuit permit accurate, independent regulation. Units are available in standard 1, 2, 3, and 5 hp sizes. *Write*: Frostrode Div., Warren Alloy, 421 Ferry St., Pontiac, Mich. *Phone*: Federal 4-0523

Permanent Magnet Used

Power-Grip magnetic coolant separators provide completely automatic coolant cleaning and can be easily installed on numerous types of grinding, honing, and gear shaving machines. Four capacities are available: 25, 50, 75, and 100 gpm.

Simplicity of operation makes it possible for a small unit to clean a relatively high volume of fluid. The coolant passes under the permanent Alnico magnet revolving drum



without interference from nonmagnetic insulators. Material is removed mechanically by a scraper from the rotating drum.

The smallest unit can be plugged into a conventional 110-volt utility outlet while the three larger sizes use 220 or 440 volts. They are available with one, two, three, or four drums. *Write*: Magnetic Div., Sundstrand Machine Tool Co., 2531 11th St., Rockford, Ill. *Phone*: 2-4477

Welder Extends Range

A portable welding machine for semiautomatic application of hard facing wire features a 14-ft flexible shaft for greater working range from one position. Its arc length control circuit has a double range, improving welding control.

Plug-in circuit construction simplifies maintenance. A remote control "inch" button on the electrode holder is also available. This makes it unnecessary to leave the work to advance the electrode.

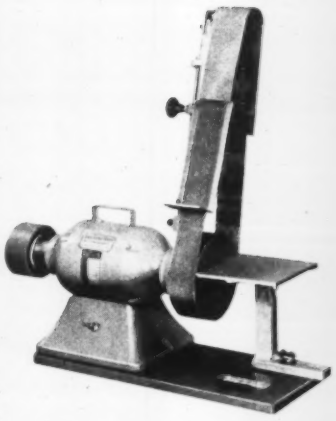
Power source may be ac-dc rectifier, motor-generator, gas drive, or constant potential machine. No alterations are required when switching from ac to dc. *Write*: Wall Colmonoy Corp., 19345 John R St., Detroit 3, Mich. *Phone*: Twinbrook 3-3800

Grinder Has Many Uses

The Versa-Mite is a 7 in 1 machine for general all-purpose grinding, finishing, and deburring.

It is a bench type unit incorporating a fast-cutting abrasive belt, and a serrated contact wheel. A coated abrasive disc, fastened to the side of the contact wheel, and a tilting adjustable table permit square and angle grinding as well as chamfering and surfacing.

Flat surfacing is done on the



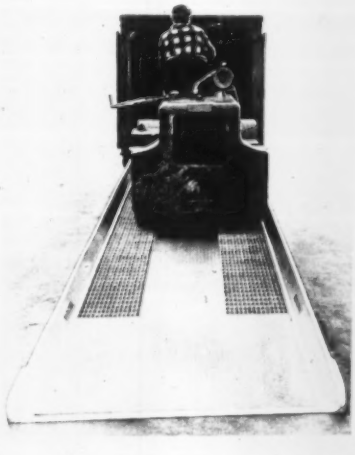
platen which is mounted on an extension arm. The machine can be operated with the arm in horizontal or vertical position.

Inside diameter or radius sanding or finishing is done by using a coated abrasive sleeve on an expanding rubber drum. Grinding wheels, wire brushes, or buffing wheels can be mounted on either end of the motor with guard and tool rest furnished as optional equipment. *Write*: Curtis Machine Div., Carborundum Co., Jamestown, N. Y. *Phone*: 6-1551

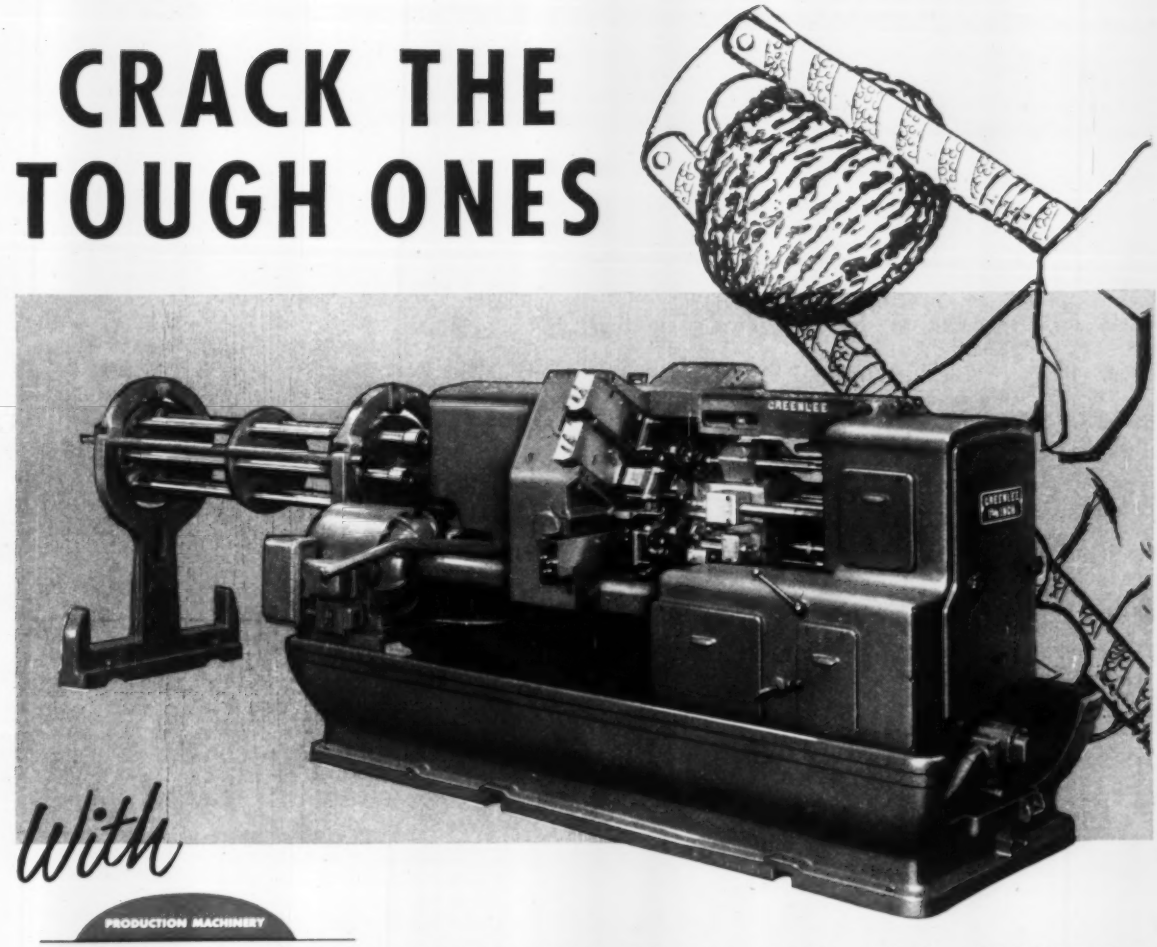
Traction Problem Solved

Nonslip grating tracks that permanently eliminate traction problems caused by snow, ice, rain, mud, or oil and grease buildup are standard on a series of mobile loading ramps.

These grating tracks are of heavy duty, open construction for self-cleaning and are set flush in the deck surface. They extend throughout the length of the area of maxi-



CRACK THE TOUGH ONES



With

PRODUCTION MACHINERY

GREENLEE

AUTOMATIC BAR MACHINES

Greenlee Standard and Special Machine Tools

- Multiple-Spindle Drilling and Tapping Machines
- Transfer-Type Processing Machines
- Six and Four-Spindle Automatic Bar Machines
- Hydro-Borer Precision Boring Machines

Maintain Tight Tolerances with Higher Speeds and Feeds

Greenlee 4 and 6-Spindle Automatics offer you both job range flexibility and sustained production.

The base and frame of Greenlee Automatics are heavy, rigid semisteel castings. Spindle carriers are heat-treated, ground one-piece castings. Headstock is scraped to fit the carriers. Precision spindles are dynamically balanced . . . ride on five widely spaced, pre-loaded, precision ball bearings for maximum accuracy.

Save set-up, maintenance and production time. Investigate Greenlee automatic bar machines. See your Greenlee Distributor.

• • •

Do you receive a copy of the Greenlee "Automatic News" regularly? If not, ask to be placed on our mailing list today.

GREENLEE BROS. & CO.

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ROCKFORD, ILLINOIS

mum slippage and provide safe, sure traction at low speeds.

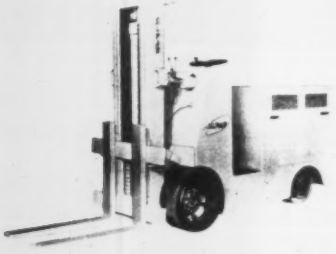
The ramps are made of magnesium for one-man handling and are available in 58 in. and 70 in. widths and in 30 ft and 36 ft lengths. Capacities range from 11,000 to 16,000 lb. A curb 4½ in. high and one-piece lower truss beam members are included to eliminate fatigue failures at welded joints.

Full pneumatic wheels with high speed bearings are standard. *Write*: Magline Inc., 1900 Mercer St., Pinconning, Mich.

Truck Has Box Frame

Electric powered, stand-up, center control fork trucks are available in 4000, 6000, 7000, 8000, and 10,000 lb capacities.

The trucks have front wheel drive and rear wheel steering for maximum maneuverability, and have been engineered for rugged service.



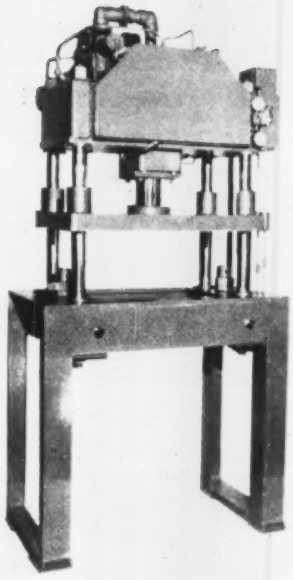
They have contactor control with automatic acceleration and four speeds forward plus reverse.

A single hand lever controls direction and acceleration. *Write*: Elwell-Parker Electric Co., 4205 St. Clair Ave., Cleveland 3, Ohio. *Phone*: Utah 1-6200

Ram Advances Rapidly

The ram of this air-hydraulic trim press advances at high speed—up to 1300 in. a minute. This is accomplished by a built-in accumulator which forces oil behind the closing ram through a fast-acting valve.

Shut height, position of the stroke, and length of stroke can be adjusted rapidly by means of set collars. The collars are adjusted so the power stroke can be cut in just before



making the trim. If the casting is cocked, the press will not reach the power stroke. The hydraulic circuit is pressurized so there is no dwell when the press enters the trim.

The press can be moved easily with a lift truck. All hydraulic equipment is placed on the top crown beam. Model 25, being offered to the diecasting industry, has a 25-ton capacity with stroke adjustable from 0 to 12 in. *Write*: B & T Machinery Co., Holland, Mich. *Phone*: Export 2-2343

Cover Extruded on Metal

A process that applies a continuous watertight extruded film up to ⅛ in. thick over tubular and other metal forms has been developed for insulating high-voltage bars for electrical distribution systems. Extruding eliminates the operation of pulling an insulating sleeve over the bar.

The method has applications where atmospheric or moisture seals, such as weatherstrip, can be incorporated into structural members. The company's machines will handle metal forms up to 4½ in. wide, 1 in. high, and 16 ft long.

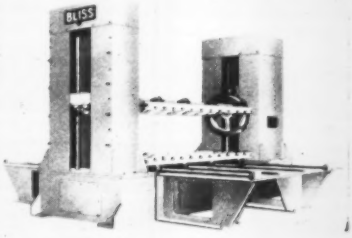
Material is applied as a seamless, integral coating, and exceptionally close tolerance of its thickness is controlled by die design and feed pressures. Coverings of Butyl, GRS, Hycar, Neoprene and rubber in black or most colors can be provided.

It is applicable for rigid and nonrigid metal forms such as flat and round tubes and bars, extruded members with intricate cross sections, braided wire, and flexible tubing. *Write*: Geauga Industries Co., Middlefield, Ohio. *Phone*: 2-2911

Dies Handled Safely

A handling machine that quickly manipulates dies in pressroom or die shop can be used to turn over a die set or to open a set for maintenance—without danger of damaging the dies.

Wheel-mounted platens are raised and rolled over by a powered screw lift and turnover drive in the housings.



Open top construction of the die handling machine permits removal of a half-die by crane at any point in the operation. *Write*: E. W. Bliss Co., 1375 Raff Road S. E., Canton 10, Ohio. *Phone*: Greenwood 7-3421

Extends Reducer Line

Four worm gear speed reducers with ⅓ to 5 hp input extend the Hygrade line down to units with center to center distances of 2 in.

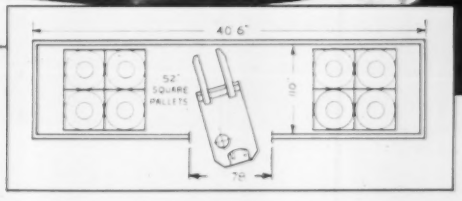
They are designed to combine maximum load carrying capacity with minimum center distances consistent with practical design and operating conditions.

Worm gears are made of alloy bronze, shafts of drop forged steel, and mating worm and shaft of alloy

NEW HEAVY-DUTY CARLOADING SENSATION

Packs 120,000 lbs. into boxcar

At one of Continental Can Company's Chicago plants an MF-150 Elbolift easily unloads eight 15,000-lb. tinplate coils on 52"-square pallets...in as little as nine minutes.



Automatic Elbolift does more work... handles heavier loads in less space.

High Stacking in Tight Quarters—Note operator's wide field of vision for stacking while maneuvering in a 53"-wide aisle. End gate optional equipment.

Automatic Elbolift's radical departure in design from the conventional mast-type truck has achieved these superior qualities for working in confined areas:

Compact Design....Elbolift with its stand-up end control design can operate easily through a 78" boxcar door with a 52"-square load.

Increased Visibility....Makes maneuvering in tight areas a snap.

Reduces Weight....Lowers floor loading requirements: for example, a 15,000-lb. capacity Elbolift weighs up to 6,000 lbs. less than a comparable mast-type truck.

New Inching Control....4 speeds forward and reverse with foot inching to any speed pre-set or selected by control handle.

Improved Load Distribution....Since tires take up ⅔ of Elbolift's 48" overall width... 32 lineal inches of tire contact with floor provides better distribution of load.

High Stacking....Built-in retraction feature maintains maximum stability every inch of its 120" lift.

But there are many more advantages, all fully described and illustrated in an informative brochure that is yours for the asking. No obligation; just mail the coupon. Ask about Automatic's convenient lease and purchase terms.

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Division of The Yale & Towne Manufacturing Company
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NEW PRODUCTS and equipment

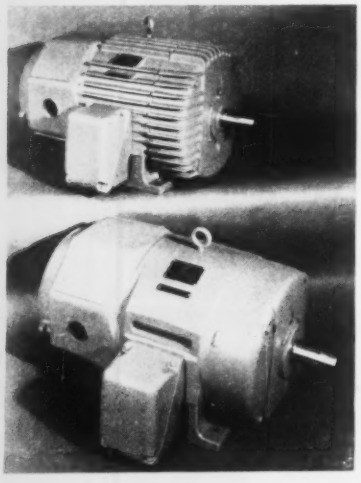
steel that has been carburized, hardened, and ground.

Units are provided with special breathers to eliminate interior pressure variations. *Write*: Foote Bros. Gear & Machine Corp., 4545 S. Western Blvd., Chicago, Ill. *Phone*: Virginia 7-4200

Motor Size Reduced

Breakdown torque of Tri-Clad 55 wound rotor motors Types MR and M is 275 per cent. These motors feature up to 59 per cent size reductions and 49 per cent weight savings. They are available from 5 through 150 hp.

Type MR, intermittent duty rated for crane and hoist operation, is available in totally enclosed nonventilated or dripproof enclosures. It is best suited for applications requiring varying speed and high starting or maximum torque. The 7½ through 30 hp models can be converted from dripproof to totally enclosed nonventilated in the field by adding or removing handhole covers and changing pulley end shields.

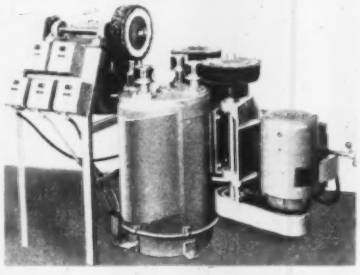


Type M, rated for constant or adjustable speed, is available in open dripproof enclosures for application on industrial equipment such as pumps, compressors, and fans.

A complete line of controls, including alternating current crane controls, is offered. *Write*: General Electric Co., Schenectady 5, N. Y. *Phone*: Franklin 4-2211

Polishing Heads Varied

A low cost, automatic polishing and buffing machine, the Junior Automatic, consists of a basic dial table with four powered work spindles and optional manual or automatic indexing with adjustable dwell.



Polishing heads are available in a choice of standard horizontal, vertical, or angled buffing wheels. Continuous abrasive belt attachments are obtainable.

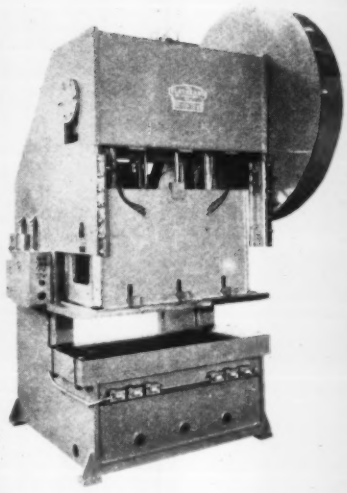
The machine occupies a 6 x 8 ft floor area fully equipped, and is capable of handling full production as well as short runs. *Write*: Murray-Way Corp., Birmingham, Mich. *Phone*: Jordan 4-6890

Press Safety Considered

This double crank, open back, gap press is designed for automatic feeds and greater convenience in handling large or irregular sheets. It has welded steel construction and a patented drum type friction clutch that is electrically controlled.

The press slide is provided with power adjustment, is air counterbalanced, has a stroke of 10 in. and 5 in. adjustment. Shut height is 22 in. Both bed and slide measure 28 x 72 in.

All gears and drive mechanism are completely enclosed. An auxiliary air brake on the flywheel insures a quick stop. *Write*: Cleveland Punch & Shear Works Co., 3917 St. Clair Ave., Cleveland 14, Ohio. *Phone*: Henderson 1-1911



Furnace Rebuilt Quickly

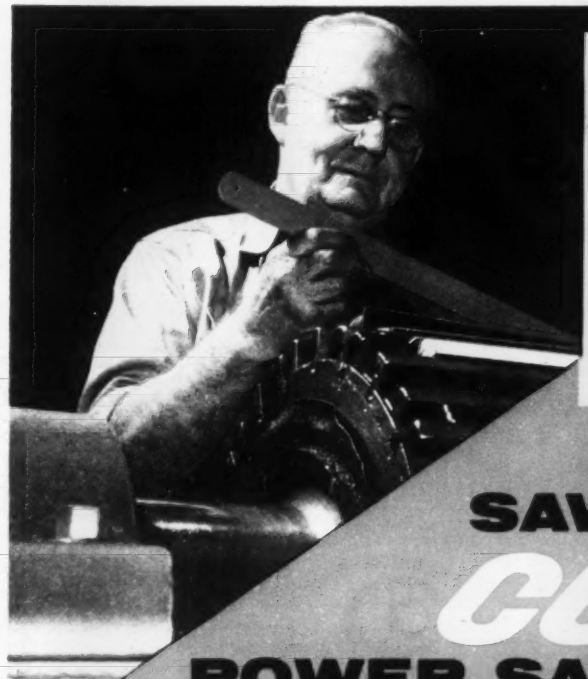
A prepiped radiant roof panel for fast, economical rebuilding and conversion of industrial processing furnaces consists of radiant cup type burners mounted in a one-piece refractory tile casting.

Connection of a single gas supply line and a single air line can be accomplished quickly. The entire roof panel can be suspended by integral ⅝-in. steel tierods attached to the reinforced refractory cover plate. Final sealing is by a 1½-in. step on all four sides of the panel.

Companion arches are available for use with the radiant panels as front walls in slot type furnaces or as curtain walls in continuous furnaces.

The panels offer increased heating efficiency for forming and forging of steel and for diecasting, sand casting, and permanent molding of aluminum. High speed combustion, with short flame length and low forward velocity of combustion gases, permits installation of the panel closer to the work.

Radiant panels are available for all existing forging and aluminum melting furnaces. Conversion drawings and installation instructions are provided with each set. *Write*: J. A. Kozma Co., 2471 Wyoming Ave., Dearborn, Mich. *Phone*: Vinewood 2-8888



Star Power Hack Saw Blades

To keep your power sawing costs at an absolute minimum, STAR Power Saws are especially designed for heavy duty operation and longer service life. STAR Power Hack Saws are manufactured from the grades of High Speed steels proven best for this purpose. Skilled and experienced saw makers use the most modern equipment for the fabrication and precision heat treatment required for uniformly superior performance. Rigid quality control combined with a progressive research program insures the continued excellence of STAR Power Hack Saw Blades.

STAR SAW BLADES CUT POWER SAWING COSTS

Star Flexible Back and Skip Tooth Bands

The uniform high quality of STAR Metal Cutting Band Saws assures top efficiency in cutting off operations or in contour sawing. All standard sizes are available so that you can select the band that's right for your purpose. Undercut tooth band saw blades cut sawing costs on softer, non-ferrous metals. Made from the finest quality band saw steels, STAR bands are available in coils or cut to length and welded. Delivery is immediate in 100-ft. specially boxed lengths—or in 250 and 500 ft. coils. Welded bands are also shipped promptly, usually within a day from receipt of order.

Your Industrial Distributor can tell you more about how you can cut production costs by specifying the *quality line*—STAR brand, Hand Hack Saw Blades, Power Hack Saw Blades, Metal Cutting Band Saws.

FREE TO YOU. Fact-filled booklet gives you valuable information, useful in your job and around the shop—*Star Metal Cutting Guidebook*. Also to put up in your shop as a handy reference—*Star Metal Cutting Wall Chart*. Clip and mail this coupon *today*.

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☐ Please send the STAR Metal Cutting Guide that contains information on blade types, cutting techniques, feeds and speeds and general metal cutting information.

☐ Please send the STAR Metal Cutting Chart—A handy guide for the shop metal worker.

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NEW literature

Write directly to the company for a copy

Steel Shelving

Bulletin No. B-20 presents the Penco line of phosphated steel shelving. Six styles of open and closed types of plain and ledge shelving (including drawers, counters, tool inserts, and boxes) are covered. Penco Metal Products Div., Alan Wood Steel Co., 200 Brower Ave., Oaks, Pa.

Atomic Tubing

"Tubing for Atomic Power," Data Memorandum No. 20, covers the two major applications for small diameter tubing: Fuel elements and heat exchangers. Secondary uses are also discussed. Characteristics and size limits of seven standard tubing materials are listed, and ten inspection and testing methods are described. Superior Tube Co., 1585 Germantown Ave., Norristown, Pa.

Zirconium and Hafnium

"Technical and Application Data on Zirconium and Hafnium," a 16-page brochure, reviews steps in the production of zirconium from raw material to finished mill products. An illustrated discussion of the basic refining processes is included. A number of tips on fabrication are presented, and properties of both in nuclear reactor applications are noted. Mallory-Sharon Metals Corp., Niles, Ohio.

Metallizing

An illustrated brochure covering all phases of metallizing explains the advantages metal spraying offers five separate fields: Coatings for machine elements, and corrosion resistant, heat resistant, decorative, and replica coatings. Desk 84, Metallizing Co. of Los Angeles, 1233 S. Boyle Ave., Los Angeles 23, Calif.

Power Rectifiers

Bulletin GEA-6375A discusses silicon and germanium power rectifiers for use in processes, production, electroplating, anodizing, and steel process lines. General Electric Co., Schenectady 5, N. Y.

Rhodium Plating

A 24-page booklet tells where, when, and how to use rhodium electroplating for exacting industrial jobs. It gives a detailed analysis of advantages provided in specific applications, such as increased reliability of critical electronic components. Graphs and charts show rates of disposition under various operating conditions. General instructions and a formula for computing the cost of rhodium plating are included. Sel-Rex Corp., Nutley 10, N. J.

Silicon Steel

A 16-page data sheet on Silectron (grain oriented, cold rolled, 3 per cent silicon) steel is titled "Allegheny Ludlum Silectron 14 Mil and 12 Mil." Major uses are in motors and laminations for power transformers. Advertising Dept., Allegheny Ludlum Steel Corp., Oliver Bldg., Pittsburgh 22, Pa.

Steel Process

The Macro-Clean process for making steels of unusual density and fine grain structure is described in a 4-page brochure. Such steels are suited for the production of machine parts that are subject to stress during operation. Green River Steel Corp., Owensboro, Ky.

Flexible Tubing

A 36-page technical data booklet covers all types of flexible tubing and hose, together with the many types of couplings which can be used with the tubing. Illustrated are tests suggested to assure peak performance. Dept. 84, Pennsylvania Flexible Metallic Tubing Co., 7200 Powers Lane, Philadelphia 42, Pa.

Cast Iron Pulleys

A 16-page catalog of cast iron pulleys contains a listing of all standard pulleys and accessories made by the company. Hewitt-Robins Inc., 666 Glenbrook Rd., Stamford, Conn.

Rolling Equipment

Units for rolling ferrous and nonferrous metals are shown and described in an 8-page catalog. Included are rolling mills, straighteners, tube mill equipment, wire machinery, and accessories. H. J. Ruesch Machine Co., 407 Mulberry St., Newark 2, N. J.

3-D Milling

A typical two work-station machine and development of space configurations through hydraulically actuated cams are shown in a brochure. Typical parts adaptable to the process are also shown. Tri-Ordinate Corp., 335 Snyder Ave., Berkeley Heights, N. J.

Ram Bending

Ram bending of pipe, tube, or structural shapes is described in a booklet that has specifications for machines ranging from hand benders to large industrial types. Wallace Supplies Mfg. Co., 1300 Diversey Parkway, Chicago 14, Ill.

Packing Handbook

Bulletin AD-162 deals with static sealing, using gaskets, and dynamic sealing for rotating and reciprocating service. Included is a table listing the effects of gases, liquids, and solvents on packing materials. Garlock Packing Co., 422 Main St., Palmyra, N. Y.

Beryllium Metal

"Facts About Brush QMV Beryllium," a 24-page booklet, gives recent data on the properties of the metal. Designed to dispel misconceptions, the booklet shows beryllium to be a structural metal of great promise—particularly where low weight and high strength, combined with other important physical properties, are important. Brush Beryllium Co., 4301 Perkins Ave., Cleveland 3, Ohio.

NEW BOOKS

The Powder Method in X-Ray Crystallography, Leonid V. Azaraoff and Martin J. Buerger, McGraw-Hill Book Co., 330 W. 42nd St., New York 36, N. Y. 341 pages, $8.75

The powder method—the analysis of polycrystalline or powdered materials by passing x-rays through the sample and recording the resulting diagram—is probably the most widely used application of x-ray diffraction, as well as one of the most modern and accurate means of analysis. This book contains a complete exposition of the principles and utilization of the powder method.

ASME Handbook—Metals Engineering—Processes, Metals Engineering Handbook Board of ASME, edited by Roger W. Bolz, editor, *Automation*, McGraw-Hill Book Co., 330 W. 42nd St., New York 36, N. Y. 448 pages, $13.50

In this handbook, engineers will find detailed data on the various processes by which metals are converted into finished products. Composed of 45 sections, it covers such areas as the heat treatment of steel, casting, hot and cold working, powder metallurgy, machining, and electroforming. The book has many charts, illustrations, and other aids. It covers scores of production methods. It is the final volume of the four-volume *ASME Handbook*.

Standardization, Economy Through Application, Proceedings of the Sixth Annual Meeting, 1957, Standards Engineers Society, Standards Engineers Society, P. O. Box 281, Camden 1, N. J. 128 pages, $3.00 to members, $3.75 to nonmembers

How to achieve the savings that standardization makes possible is described by outstanding national authorities. Seventeen papers presented at the Sept. 23-25, 1957, meeting at New York are given in full with charts and illustrations. Subjects covered include standards and management, company standards, co-operation between company departments, sources of information for preparing standards, reliability, and the relation of standards to cost reduction.

Plant Engineering Practice, by the editors of *Plant Engineering*, F. W. Dodge Corp., 119 W. 40th St., New York 18, N. Y. 704 pages, $18.50

A handbook covering major areas of plant engineering activity consists of material entirely practical in nature; its purpose being to offer tested solutions to the many problems that the plant engineer and his staff encounter. There are 226 detailed studies organized into extensive sections covering: Sites and layout, construction, housekeeping and safety, material handling, maintenance, paints and protective coatings, mechanical power and piping systems, electric power, lighting, utilities, heating, ventilating and air conditioning, instrumentation, quality control, and shopwork.

TRAMRAIL TRANSFER CRANES *SYSTEMATIZE* HANDLING IN STEEL WAREHOUSE

The large storage area is completely covered by Tramrail crane service. Every item can be seen from the floor and readily reached with the two transfer cranes.

▲ The Tramrail transfer cranes make it easy to place the long unwieldly pipes and bar stock into storage at any height. This makes for orderliness, which is an important factor in securing high operating efficiency.

A LARGE modern warehouse at Atlanta, Georgia, was designed to make use of overhead Tramrail equipment to enable the handling of large unit loads in and out of storage with the least effort and in the quickest time.

The principal storage section is provided with two parallel runways each having three tracks. On both runways is a 64-foot transfer crane that travels the length of the room. Cross-overs are provided, enabling a hoist carrier transferring from one crane to the other. This makes it possible to haul materials between any two points in the entire area without rehandling.

Steel is constantly on the move in this active plant. From 60,000 to 70,000 lbs. are brought in by railroad car daily and like amounts are shipped out. The material is unloaded from railroad cars at one end of the building and placed into storage. It is shipped out on trucks which are loaded at the other end.

The overhead crane system makes it possible to place incoming materials into allotted storage spaces at once. The need of storing temporarily in aisleways or other areas and extra handling which this entails is eliminated. Thus, the warehouse is kept orderly at all times and every item is readily seen and conveniently reached. Danger of handling accidents is minimized and overall efficiency is unusually high.

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BOOKLET No. 2008. Packed with valuable information. Profusely illustrated. Write for free copy

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THE CLEVELAND CRANE & ENGINEERING CO.
7881 EAST 284th Street, Wickliffe, Ohio

CLEVELAND TRAMRAIL
OVERHEAD MATERIALS HANDLING EQUIPMENT

Experience—*the extra alloy in* ***Allegheny Stainless***

key words in solving production puzzles:

Allegheny for Stainless; Ryerson for Service

If one of your toughest production puzzles is getting top quality stainless steel *when* you need it, check in now with the Allegheny-Ryerson combination.

Allegheny Ludlum is the leading producer of stainless steels in all forms. And Ryerson, long recognized as the largest and best steel service center, carries Allegheny Stainless. This unbeatable team brings you the best quality stainless quick, when you need it.

Ryerson now stocks 2,351 shapes, sizes, finishes and alloys of Allegheny Stainless . . . the most complete line of stainless anywhere! And Ryerson relieves you of the inventory cost, gives you as quick service as your own stockroom.

Whether your order is for Allegheny Stainless sheet, plates, bars or whatever, Ryerson stocks it. Trained salesmen and technicians to help in selecting or in fabricating are at your service.

Call Ryerson, for top quality Allegheny Stainless from warehouse stocks. ***Allegheny Ludlum Steel Corporation, Oliver Building, Pittsburgh 22, Pa.***

WSW 7124

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for warehouse delivery of Allegheny Stainless, call RYERSON

Export distribution: AIRCO INTERNATIONAL

EVERY FORM OF STAINLESS . . . EVERY HELP IN USING IT

Market Outlook

Production Pickup Stirs Hopes

STEEL PRODUCTION is on the upgrade. At 50 per cent of capacity, it's 3 points above the year's lowest operating level (recorded only two weeks ago) and 2 points ahead of last week's rate. During the week ended May 11, production was about 1,350,000 net tons of steel for ingots and castings—the highest weekly output in more than a month.

Improved operations in the Detroit area are chiefly responsible for the gain. Both Great Lakes Steel Corp. and Ford Motor Co. have resumed steelmaking after layoffs of several weeks.

ONWARD AND UPWARD— It would be easy to conclude that production has only one way to go (it fell to a postwar low in April) and that we're witnessing the first signs of recovery. Roger M. Blough, U. S. Steel Corp.'s chairman, said recently that the outlook is "better now than it has been at any time in the last six to nine months for a bottoming out of the steel recession." April might well be the low month, he added.

NO SUDDEN SALVATION— Despite the pickup, most steelmen will agree with John L. Neudoerfer, chairman of Wheeling Steel Corp.: "We don't expect marked improvement in the current level of operations until fall. By that time, the volume of public construction will have increased, production of 1959 automobiles will be underway, and defense spending will have been stepped up."

WHAT'S BEHIND IT?— So far as the Detroit area's concerned, increased steel output means only that the mills have accumulated enough orders to justify starting up. Automakers are ordering small tonnages for limited production runs on '59 models, but they won't buy heavily before July. Their sheet inventories are estimated at 26 days, which is almost enough to finish the '58s.

Nationally, steelmaking's on the upgrade because: Inventory reductions are running their course; some consumers are hedging against a price increase; and construction is taking greater tonnages. Improved demand for plates, structurals, reinforcing bars, and galvanized sheets is helping to offset the near collapse of demand for sheets, strip, and oil country goods.

WAREHOUSE SALES SLOW— Although construction activity is gaining momentum, few warehouses are benefiting from it. Contractors won't order reinforcing bars or structurals from warehouses when they can get two week delivery from mills. Says one steel supplier: "I could sell to fabricators, but I won't—not at the prices they're willing to pay." With most of their customers continuing to buy hand to mouth, warehouses report a higher percentage of orders for cut material.

TOO MUCH CAPACITY— Sensitive to criticism that they're overexpanded, steelmakers have a ready explanation: It takes 140 million tons of capacity to support "normal" demand, which is currently 115 million to 120 million tons. "We have to allow for the ups and downs and be ready to supply more steel when it's needed," says one mill executive. "Under present conditions, the low point in demand would probably be about 90 million tons."

U. S. Steel's Mr. Blough predicts that the industry will need up to 40 million tons of new capacity in the next ten years "to meet just the continued average expansion that our nation has experienced."

WHERE TO FIND MARKETS & PRICES

	News	Prices		News	Prices
Bars, Merchant	120	129	Pig Iron	125	134
Reinforcing	146	130	Piling		129
Boiler Tubes		132	Plates	122	129
Clad Steel		133	Plating Material		145
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Ores	125	135	Warehouse	119	134
			Wire	122	131

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(Advertisement)

SPECIAL REPORTS ON FINISHING NON-FERROUS METALS

NUMBER I—Decorative, Corrosion-Resistant Finishing with Iridite

Chromate conversion coatings are well known and accepted throughout industry as an economical means of providing corrosion protection, a decorative finish or a good paint base for non-ferrous metals. However, continued developments are so rapid and widespread that many manufacturers may not be completely aware of the breadth of application of this type of finish. Hence, this digest of current information; to bring you up to date on the many ways in which you can combine salable appearance with durability in one finish at a competitive price advantage. Report II on paint base, corrosion-resistant finishes and Report III on chemically polished, corrosion-resistant finishes are available on request.

First, as a basis for this discussion, a "decorative" finish is considered as any chromate film that is used as a final finish in itself. It may be truly decorative in that its sole purpose is to enhance the beauty of the product. For example, a bright chrome-like finish or a pleasing bronze appearance are among the many effects that can be obtained. It may be functionally decorative in that it reduces reflectivity for camouflage purposes or provides a means of color-coding parts. But, in all cases, the Iridite films protect the metal against corrosive attack.

Iridite finishes are now available for all commercial forms of the more commonly used non-ferrous metals, including zinc, cadmium, aluminum, magnesium, silver, copper, brass and bronze. These films can produce a wide variety of pleasing appearances. The basic colors of the Iridite coatings are grouped below by metals.

ZINC and CADMIUM: Metallic bright, light iridescent, iridescent yellow, bronze, olive drab.

COPPER, BRASS, BRONZE: Metallic bright, yellow.

ALUMINUM ALLOYS: Clear, iridescent yellow, brown.

MAGNESIUM ALLOYS: Light brown, dark brown, black.

SILVER: Metallic bright.

In addition, many films can be modified by bleaching or by dyeing. Among the dye colors available are various shades of red, yellow, green, blue or black.

Depending upon the metal and the Iridite used, corrosion resistance of clear and bright films ranges from mild passivity to as high as 500 hours in salt-spray; on heavier dark films, salt-spray resistance ranges from approximately 100 to 1000 hours.

It is this combination of decorative and corrosion resistant properties that accounts for the widening use of Iridite finishes. For example, Iridites #4-73 and #4-75 (Cast-Zinc-Brite) make possible for the first time, a combination of lustrous chemical polishing of the as-cast surface of zinc die castings and good resistance to corrosion. Further, in many cases, sizeable savings in the cost of buffing and electroplating are realized.

On many steel parts, a simple system of zinc or cadmium plate and bright Iridite is used instead of more costly electroplated finishes to provide a bright, decorative and protective finish with tremendous savings in material, equipment and labor.

In finishing aluminum, where corrosion resistance or paint adherence is the prime consideration, the aircraft industry has all but abandoned the anodizing process in favor of recently developed chromate conversion coatings, among them Iridite #14 and #14-2 (Al-Coat). These formulations and their method of application can be varied to retain the original metallic appearance while providing acceptable corrosion resistance, or to produce a fully colored brown finish that offers exceptional corrosion protection. Again, time and manpower savings are astounding—one company saved at least $15,000 a year on maintenance of racks alone and another $40,000 on materials and labor in only nine months. In addition, of course, hundreds of thousands of dollars are saved by eliminating the need for expenditures for generators, heating equipment and racks.

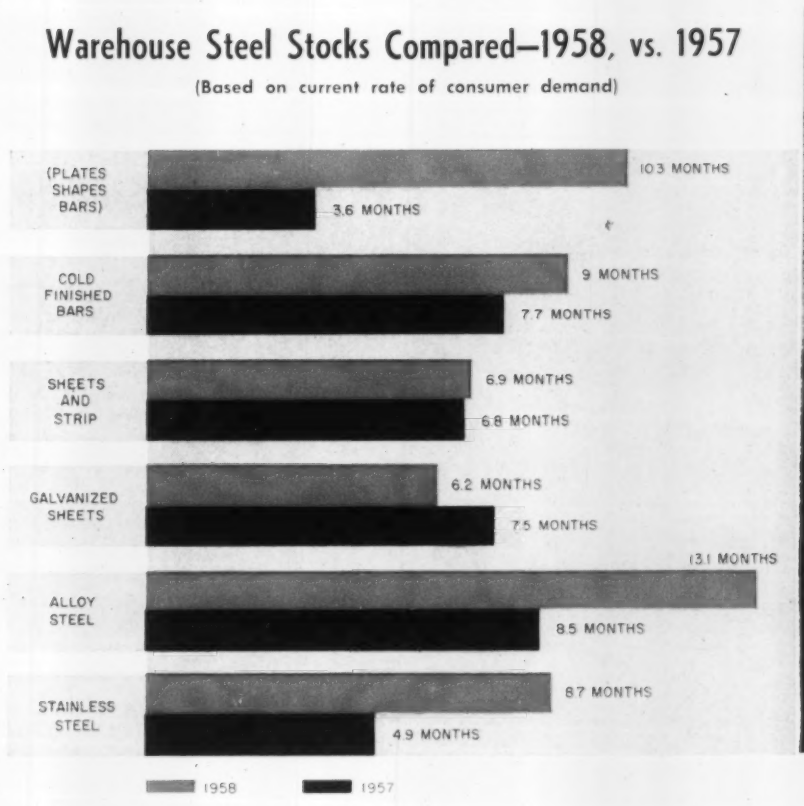
Iridites are widely approved under both Armed Services and industrial specifications because of performance, low cost and savings of materials and equipment.

In planning or designing, you should consider the many other characteristics of Iridite finishes which may enter into the specific problem. In addition to having decorative and protective functions, these chromate coatings form an excellent base for organic finishes and bonding compounds. They have low electrical resistance. Some can be soldered and welded. The Iridite film itself does not affect the dimensional stability of close tolerance parts.

You can see then, that with the many factors to be considered, selection of the Iridite best suited to your product requires the services of a specialist. That's why Allied maintains a staff of competent Field Engineers—to help you select the Iridite to make your installation most efficient in improving the quality of your product. You'll find your Allied Field Engineer listed under "Plating Supplies" in your classified telephone book. Or, write direct and tell us your problem. Complete literature and data, as well as sample part processing, is available. Allied Research Products, Inc., 4004-06 E. Monument Street, Baltimore 5, Maryland.

WHAT IS IRIDITE®?

Briefly, Iridite is the tradename for a specialized line of chromate conversion finishes. They are generally applied by dip, some by brush or spray, at or near room temperature, with automatic equipment or manual finishing facilities. During application, a chemical reaction occurs that produces a thin (.00002" max.) gel-like, complex chromate film of a non-porous nature on the surface of the metal. This film is an integral part of the metal itself, thus cannot flake, chip or peel. No special equipment, exhaust systems or specially trained personnel are required.



ROBERT G. WELCH
Executive vice president and secretary
American Steel Warehouse Association

Steel Warehouse: '70 Style

Distributors in Las Vegas, Nev., for 49th annual meeting of ASWA, talk about using recession period as a "breather" to prepare for prolonged prosperity they foresee

WAREHOUSEMEN are planning a revolution. That's the impression you get from talking with Bob Welch, executive vice president, American Steel Warehouse Association. He predicts that "steel service centers" will:

- Double their steel take (14,507,308 net tons of finished products in 1957) by 1970.
- Increase their nonferrous volume by an even greater percentage. And more of them will carry aluminum, magnesium, titanium, and other metals—possibly even zirconium and beryllium.
- Offer great variety in bins and shelves, favoring lighter items like specialties and alloys.
- Be widely accepted by manufacturers as an economical and dependable steel source.
- Introduce new metals and alloys as a primary function.
- Shear, cut, saw, slit, burn, and level as common operations.
- Counsel customers on a wide range of metallurgical and technical problems.
- Automate their warehouses. (Electronics will play an important part.)
- Elevate merchandising to a high plane through realistic costing, with service and quality as the paramount factors in establishing pricing policies.

There may be more specialized and larger warehouses as competition directs business into the channels that give each buyer the best possible service, he adds.

New Handle—The term "jobber" is no longer a fitting label for warehousemen. It's almost a "dirty word" to many. Service, they insist, distinguishes them from the broker and middleman of the past.

Storing, handling, and merchandising have been the prime areas of distributor thinking. They've been revamping those practices and modernizing their facilities. While still improving those areas, they're now heading for new horizons.

Their educational advertising and enlightened public relations are paying off in recognition of their essential role in distribution.

Pushes Change—Mr. Welch has been instigating changes for several years. Some of his proposals, like a new accounting system (Distribution Cost Analysis), have won wide acceptance despite their newness.

Recession problems are receiving attention, but Mr. Welch and his associates are treating the slump

as a "breather" to get ready for a "prolonged prosperity period just ahead."

Orders Are Down—Warehousemen say order volume is off at least 30 per cent from what it was last year. The east coast and Great Lakes areas were hit hardest. Competition is keen, and there's some price cutting. Mill competition for small lots is rising. But distributors say the recession has diverted some regular mill customers to them.

Stocks Are O.K.—Inventories are ample and well rounded for current needs. At the beginning of the second quarter, total steel stocks were estimated at 3.7 million net tons (vs. 2.9 million tons a year ago). The heaviest increase is in plates and structurals which were in short supply through most of 1957 (See chart on Page 119).

Convention—ASWA's 49th annual meeting (May 11-14) is being held in Las Vegas, Nev. Representatives will tour nearby Nellis Air Base where they'll watch rocket firing from jet planes. A convention highlight will be J. Lewis Powell's address, "The Collapse of Time." Mr. Powell is program co-ordinator, Supply & Logistics, Office of Assistant Secretary of Defense.

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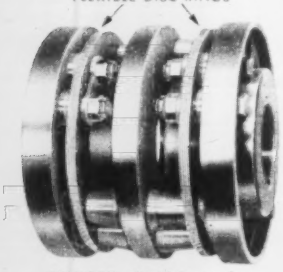

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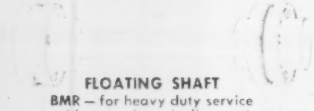

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WARREN, PENNSYLVANIA, U.S.A.

Warehouse . . .

Warehouse Prices, Page 134

The steady decline in bookings that has characterized the warehouse steel market for many weeks has ended. Distributors are now awaiting a definite upturn.

In some districts, including Houston, an improvement is noted in demand for all product classifications. In these districts, distributors have placed orders with mills for significant tonnages to replace stocks.

Although construction activity is gaining, warehouses are getting only a small share of the increased business. Many contractors will not order reinforcing bars and structurals from distributors when they can get prompt delivery from mills. Says one steel supplier in the Pittsburgh district: "I could sell to fabricators, but I won't . . . at the prices they're willing to pay."

With most of their customers continuing to buy hand to mouth, warehouses report a higher percentage of orders for cut material. They're also getting a flood of price inquiries from manufacturers who contemplate the introduction of new products but have no intention of ordering steel in the near future.

Steel Bars . . .

Bar Prices, Page 129

The steel bar market continues to be colorless, with the demand pattern running about as it has in recent weeks. Buying of carbon and alloy material is largely confined to fill-in orders for prompt shipments, though producers detect a leveling out in business activity, indicating that the decline has hit bottom.

Consumption is off, notably among the normally large consumers. Inventories are substantial, especially hot rolled. Automotive buying for the 1958 model runs is apparently ended, and not much new business is expected from Detroit until August. One Pittsburgh producer of cold-drawn bars says: "We'll be lucky if predictions for a fall upturn materialize."

Forge shop operations in the East are spotty, and May-June orders

from that sector of the market are light. Early shipment is stressed in the placing of orders, and the mills are accepting more small lots than usual, some as small as 4000 lb per size and grade.

Early this month, cold-drawn bar producers reduced extras for standard manufacturing tolerances on ground and polished carbon bars. Closer accuracies now may be obtained in many cases without extra charge.

Sheets, Strip . . .

Sheet & Strip Prices, Pages 130 & 131

Sheetmakers are not banking heavily on an early sizable gain in demand on automotive account. Currently, auto builders are doing a little buying of small lots for 1959 production runs.

One supplier at Detroit says General Motors purchasing executives are asking how quickly it can deliver if the company reverses its present buying policy and starts ordering for stockpile. The answer: It's easy to make large shipments now, but it may be difficult later.

Notes Gain—Perry L. Francis, vice president-sales, Alan Wood Steel Co., Conshohocken, Pa., recently told a company sales conference that slight increases are turning up in incoming orders from the auto industry, but he warned there are no positive signs that they signal the start of an uptrend in automotive business.

In the St. Louis area, Granite City Steel Co.'s orders for hot-rolled sheets were 40 per cent less in April than they were in March. Cold-rolled sheet orders, though, were up 30 per cent. Pittsburgh producers see no particular change in the market outlook. Their customers are buying largely for immediate use, although inventories are "next to nothing." Makers of farm implements are ordering fair volume, and the highway program is providing substantial support. Sales to appliance manufacturers are disappointing.

Slight Pickup—Eastern suppliers say that sheet and strip orders are heavier only to the extent consumers are booking slightly increased volume of fabricated finished goods. The trend is spotty. There are more orders for May shipment without a marked improvement in over-all tonnage. The heavy con-

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Write today for your FREE COPY of the Wheelock, Lovejoy Data Book. It contains complete technical information on grades, applications, physical properties, tests, heat treating, etc.

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suming lines, notably automotive and railroad, are contributing little to the slight upturn.

Output of galvanized sheets is at near capacity. Some of the strength in this area is due to the approach of warm weather and the need to complete ductwork for air conditioning units. Demand for corrugated sheets in April was 20 per cent above March volume in the St. Louis area. Production there largely goes for siding and roofing.

Only minor hedge buying is noted, although it is generally thought prices will go up at midyear (see Page 45).

New Products—Inland Steel Co., Chicago, is accepting orders for Paint-Tite galvanized sheets, a new product that's available in coils and cut lengths in gages 14 through 24 and in widths up to 48 in. The zinc coating is converted to an iron-zinc alloy by a continuous process. The surface is nonspangled and is suitable for painting without weathering or chemical etching. The base price is $7 per 100 lb, f.o.b., Indiana Harbor, Ind.

Plates . . .

Plate Prices, Page 129

While increased fabricating operations are noted at some points, plate shops continue to lean heavily on inventories—notably eastern tank and structural fabricators who are finding they can fill most of their requirements without buying much new tonnage.

Shipyard needs will be substantial through the remainder of this year. But yard pressure for shipments is not particularly urgent.

A Pittsburgh construction firm has enough plates and shapes on hand to satisfy its needs for the next four months. Its April bookings weren't any better than those in March, but a noticeable upturn in inquiries suggests more work is in the offing.

Bridges account for most of the heavy construction, and price cutting on fabricated and erected work presents a problem. Some companies appear to be bidding without thought of turning a profit.

Hoping to work down its plate inventory to a desired level by June, a Pittsburgh district manufacturer of electrical equipment is ordering for July delivery, and expects tonnages to be 15 per cent lower than last year's. After July, this consumer will buy plates at the rate they're consumed.

Bookings and shipments are about in balance, but plate rolling operations are not likely to rise much during the second quarter. May bookings are only a few points above the low April volume booked by eastern mills.

Tin Plate . . .

Tin Plate Prices, Page 131

Although tin plate demand continues strong, tonnage has been adversely affected at Granite City, Ill., by the recent shutdown of the cold mill there for repowering. Although the cold mill resumed operations Apr. 15, it has not been turning out light gage sheets. It will later. Meanwhile, the Granite City producer reports demand for tin plate is well sustained.

Chicago district tin mills are operating at capacity.

Wire . . .

Wire Prices, Pages 131 & 132

Except for moderate improvement in demand for welded highway mesh, wire and strand for prestressed concrete, and other building requirements, wire product bookings so far this month are not impressive.

Manufacturers', heading, and spring wire buying is light. Many industrial grades are available for shipment within two weeks, and consumers are not placing forward orders.

Most users' inventories of finished wire are low. But they are doing little price-hedge buying. Rod stocks are relatively heavier than drawn wire inventories.

Automotive demand continues to be slow.

Base prices on wire products are generally holding, though wire rope and woven cloth are soft. Stiff price competition from imported wire items is an unsettling influence.

Effective May 1, Mid-States Steel & Wire Co., Crawfordsville, Ind., announced new base prices on merchant products at Jacksonville, Fla. Reductions of about $5 a ton were made to bring Jacksonville prices in

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from 3 to 56 hp.

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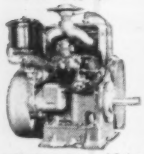
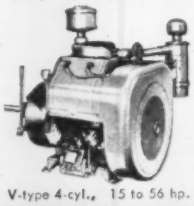


2-cylinder 10 to 18 hp.



V-type 4-cyl., 15 to 56 hp.

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Here is complete power selectivity, practically tailored to the machine and the job. All models have such traditional "Wisconsin" features as: heavy-duty design and construction in all details; basic high torque engineering and performance; dependable, trouble-free air-cooling at all temperatures from low sub-zero to 140° F.—*plus* exclusive specialization in the manufacture of air-cooled engines, backed by more than 2,000 approved service stations.

You can recommend and specify Wisconsin Heavy-Duty Air-Cooled Engines with confidence in your good judgment. Write for copy of engine bulletin S-223 and Bulletin S-198 (roster of Wisconsin distributors and dealers, world-wide).

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line with the company's Crawfordsville base. No change was made in any of the Crawfordsville base prices, nor in the Jacksonville base prices for manufacturers' bright low carbon wire and fine and weaving wire in 8-in. coils.

The company explains the cut in merchant product prices at Jacksonville as necessary to compete with import prices.

Tubular Goods . . .

Tubular Goods Prices, Page 133

Decreased power consumption is causing some utilities to postpone new building. This means they are ordering less pressure tubing. Active tubemakers expect to get some business diverted to them by the shutdown of competitors who are utilizing the slack period to overhaul facilities.

April shipments of pressure and mechanical tubing were no better than those in March, a Pittsburgh mill reports. Bookings, though, were somewhat improved, and May sales are expected to continue at the April level.

"We're having a seasonal improvement in demand for standard pipe," one Pittsburgh executive said last week, "but oil country goods are going from bad to worse. Not since the early thirties has the market for drill pipe and casing been so sluggish."

May sales of oil country goods are likely to fall short of April's volume; in fact, no significant improvement in demand is anticipated before October. Warehouse distributors in the Southwest, though, are doing a little better business.

E. B. Germany, president, Lone Star Steel Co., Lone Star, Tex., recently said that despite the slow market there are signs of improvement in drilling and the oil business generally, and that many pipeline companies are going ahead with plans for construction. This, to some extent, confirms rumors heard by line pipe suppliers at Pittsburgh that some gas transmission companies won't wait for the Supreme Court review of the Memphis decision before getting construction programs going.

Prospects are favorable in cast iron pipe. Sales volume is likely to equal last year's satisfactory level in the Pacific Northwest. Bids are in there for the Mercer Island

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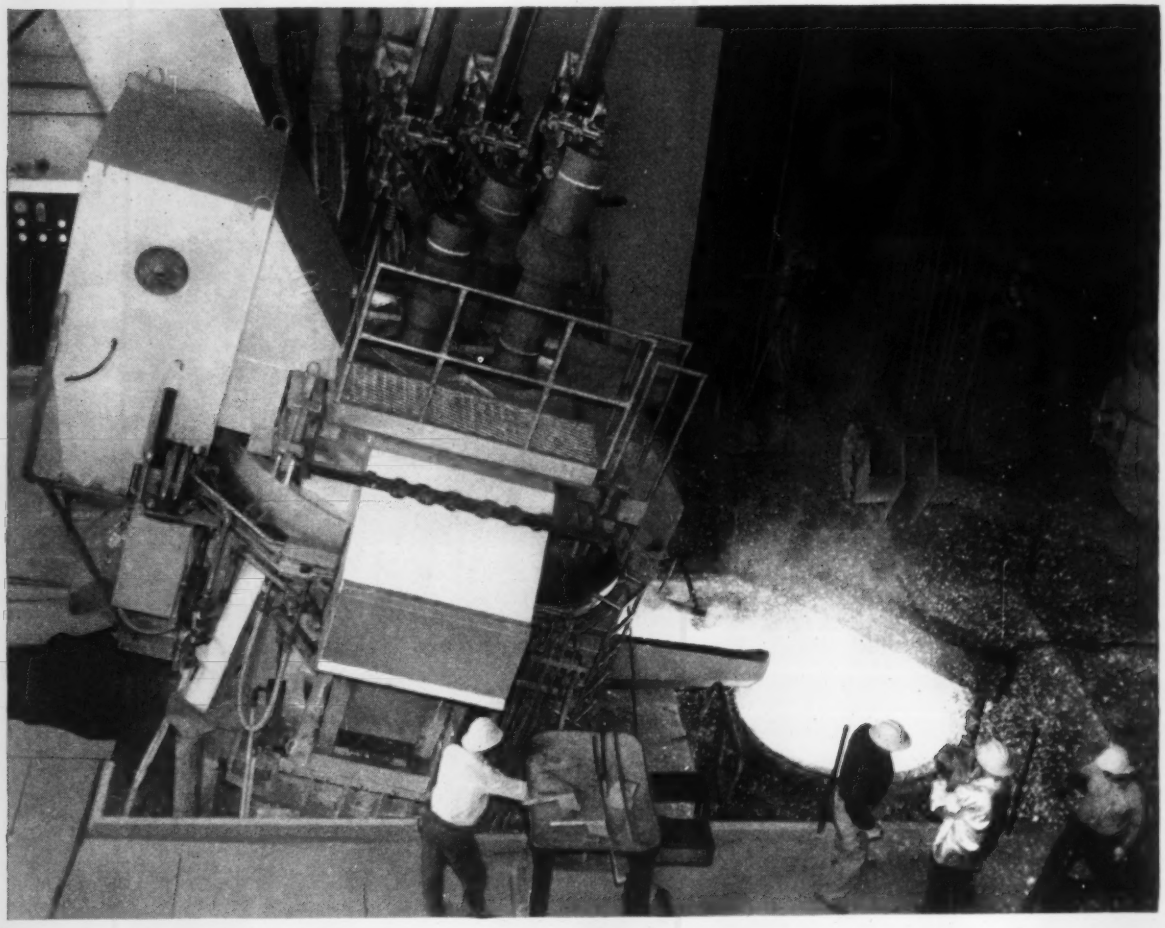

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project, Seattle, involving 1400 tons of 14 to 4 in. King County District No. 90, Seattle, will open bids May 13 for 150 tons or more of 6 and 4 in. pipe.

Tool Steel . . .

Tool Steel Prices, Page 133

One positive benefit from the business recession is a marked increase in product development and improvement. That's what M. W. Saxman, president, Latrobe Steel Co., Latrobe, Pa., told stockholders at their annual meeting. The company is one of the principal manufacturers of high-speed and superalloy steels.

Discussing product development, Mr. Saxman said: "Since there has been increased competition for the available dollars recently, most companies have had to put even more stress than usual on improvement of products to maintain a competitive edge.

"The impact of the jet age spurred developments in all lines of high quality metals. While profits are down in many companies, business will come out of the recession with better products."

Two specialty steel sellers claim their volume is holding even with last year's, but it's taking a lot more selling to do it. There has been no pickup in specialty steel orders for a week or so at Detroit.

Pig Iron . . .

Pig Iron Prices, Page 134

Merchant iron demand remains extremely dull. Only an occasional spot order for foundry iron is being placed.

In the Chicago district, most jobbing foundries are operating at less than 50 per cent of capacity. No improvement is sighted in the near future. The second quarter is expected to be no better than the first, and it will probably be a little poorer. The usual foundry closings for vacations in the third quarter make a pickup in that period unlikely. Consensus is that it will probably be the fourth quarter before any substantial tonnages will be booked.

Bucking the general trend, an upturn in orders has caused Republic Steel Corp. to reopen its blast furnace at Troy, N. Y. The plant had been shut down since Jan. 1.

Stainless Steel . . .

Stainless Steel Prices, Page 133

Production of stainless and heat resisting steel ingots in the first quarter this year totaled 167,821 net tons, reports the American Iron and Steel Institute. This compares with 206,624 tons in the preceding quarter, and 323,003 tons in the first quarter, 1957.

Stainless steel appears to be moving better on appliance account. Orders have been picking up steadily, manufacturers booking business for late June delivery.

Apparently some other industries are trying to anticipate buying by the automakers come June and July. The auto companies still say the bulk of their ordering will be for August and September shipment.

Iron Ore . . .

Iron Ore Prices, Page 135

Total stocks of iron ore in the U. S. and Canada were 53,096,704 gross tons on Mar. 31, reports the American Iron Ore Association. At the end of the preceding month the total was 57,795,051 tons, and on Mar. 31, 1957, 32,468,490 tons.

March consumption amounted to 7,361,414 tons, vs. 6,861,624 tons in February, and 11,848,680 tons in March, 1957. In the first three months this year, consumption was 22,253,550 tons, vs. 34,833,076 in the like period of 1957.

On the last day of March there were 169 blast furnaces operating in the U. S. and Canada against 258 on the same date a year ago. In February, 175 furnaces were engaged.

The Great Lakes iron ore fleet numbered 250 vessels with trip capacity of 2,978,835 gross tons at the beginning of the 1958 navigation season, reports M. A. Hanna Co., Cleveland. Average size of vessels is 11,915 gross tons. One ship has been added since last year, two have been renamed, and four have been deleted from the list.

Individual fleets: Pittsburgh Steamship Div., U. S. Steel Corp., 57 vessels (with trip capacity of 764,100 gross tons); Interlake Steamship Co., 33 (416,300); Kinsman Transit Co., five (48,000); Hutchinson & Co., 24 (230,850);

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Inland Steel Co., five (73,800); M. A. Hanna Co., 10 (154,100); Jupiter Steamship Co., two (14,210); Cleveland-Cliffs Iron Co., 16 (191,675); Bethlehem Transportation Co., 11 (151,300); Republic Steel Corp., nine (107,700); Cargo Carriers Inc., four (28,200); Columbia Transportation Co., eight (98,000); Reiss Steamship Co., seven (74,100); Tomlinson Fleet, seven (72,600); Midland Steamship Co., five (49,550); Shenango Furnace Co., two (29,400); Boland & Cornelius, five (46,400); Browning Lines Inc., four (40,900); Gartland Steamship Co., four (34,650); Ford Motor Co., three (46,600); International Harvester Co., two (23,000); Brown & Co., two (15,000); Wilson Marine Transit Co., 20 (232,800); Waterways Navigation Co., one (6700); T. J. McCarthy Co., four (28,900).

Iron Ore Statistics—March, 1958

(Gross tons)

Stocks at	U. S. Ores		Canadian		Foreign	
U. S. Furnaces:	L. Superior	Other	L. Superior	Other	Ores	Totals
Eastern	3,825,144	202,476	236,034	1,702,307	3,291,330	9,257,291
Pitts.-Youngstown	8,697,427	26,322	560,745	1,859,041	3,281,216	14,424,751
Cleve.-Detroit	8,192,742	116,123	246,739	285,674	212,852	9,054,130
Chicago	9,199,813	(a)	(a)	.....	(a)	9,199,813
Southern	(a)	2,227,019	.....	(a)	1,375,694	3,602,713
Western	.....	778,106	.....	.....	.....	778,106
Totals	29,915,126	3,350,046	1,043,518	3,847,022	8,161,092	46,316,804
At U. S. Docks:						
Lake Erie	3,654,475	.....	113,505	986,159	.....	4,754,139
Other docks	.....	.....	.....	(a)	(a)	(a)
Totals	3,654,475	.....	113,505	986,159	(a)	4,754,139
Total U. S. Stocks	33,569,601	3,350,046	1,157,023	4,833,181	8,161,092	51,070,943
Total Canadian	1,461,909	.....	24,215	405,988	133,649	2,025,761
Total U. S. & Canada	35,031,510	3,350,046	1,181,238	5,239,169	8,294,741	53,096,704

CONSUMPTION OF IRON ORE—MARCH, 1958

(Gross tons)

	U. S. Ores		Canadian		Foreign	Total
U. S. Districts:	L. Superior	Other	L. Superior	Other	Ores	Consumption
Eastern	414,448	137,621	35,237	117,378	794,124	1,498,708
Pitts.-Youngstown	1,332,829	136,538	66,873	290,677	378,131	2,205,048
Cleve.-Detroit	598,940	24,692	94,020	9,234	42,556	769,442
Chicago	1,366,332	(a)	(a)	.....	(a)	1,366,332
Southern	(a)	431,674	.....	(a)	179,288	610,962
Western	.....	496,849	.....	.....	.....	496,849
In U. S.:						
Blast furnaces	3,152,711	907,410	144,374	291,639	580,726	5,076,860
Steel furnaces	120,159	63,626	315	6,327	308,962	499,389
Sintering (8)	439,590	256,308	51,441	119,223	504,300	1,370,862
Miscellaneous (9)	89	30	.....	.....	111	230
Total U. S.	3,712,549	1,227,374	196,130	417,189	1,394,099	6,947,341
In Canada:						
Blast furnaces	208,716	.....	38,162	58,525	.....	305,403
Steel furnaces	5,484	.....	.....	8,776	12,439	26,699
Sintering (8)	75,369	.....	.....	6,587	.....	81,956
Miscellaneous (9)	15	.....	.....	.....	.....	15
Total Canadian	289,584	.....	38,162	73,888	12,439	414,073
Total U. S. & Canada	4,002,133	1,227,374	234,292	491,077	1,406,538	7,361,414

(a)—Small tonnage included in other districts to avoid disclosure.
(8)—Consumed in plants not located at mine site.
(9)—Sold to nonreporting companies or used for purposes not listed.
Data from American Iron Ore Association.

The Pittsburgh Steamship Div. (U. S. Steel) lake ore carrying fleet starts its 1958 navigation season this week. Only 37 vessels in the fleet of 57 will be put into commission now.

Semifinished Steel . . .

Semifinished Prices, Page 129

Steelmaking operations jumped 2 points last week to 50 per cent of rated capacity, the highest level in over a month. The rise was attributed to operating gains at all production points except Chicago.

The increase at Detroit, 22.5 points to 34.5 per cent, was particularly significant, reflecting receipt by local mills of small auto tonnages required for 1959 model runs following die tryouts. Tonnages involved are no larger than those scheduled for tryout runs.

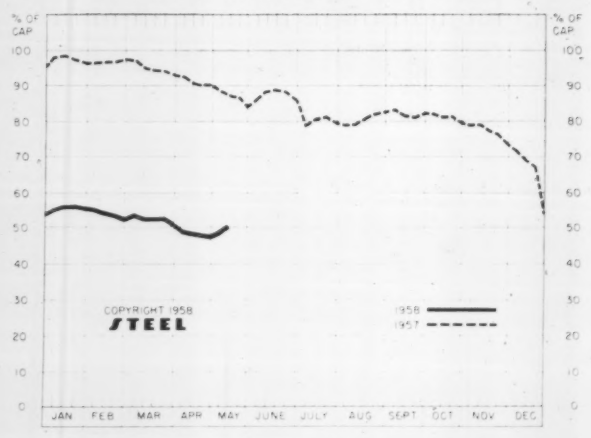
Ralph L. Gray, president, Armco Steel Corp., Middletown, Ohio, expects a pickup in steelmaking operations late this year.

Continued sluggish demand for steel has set back resumption of operations indefinitely at the Cleveland Works, Jones & Laughlin Steel Corp. Production was suspended at this plant in February to allow completion of a modernization and expansion program. About 2500 of the normal work force of 4200 were laid off at that time.

A. W. Franz, president of Colorado Fuel & Iron Corp., indicated last week that he expects the seasonal demand for highway construction steel to spur his company's production.

(*Please turn to Page* 137)

NATIONAL STEELWORKS OPERATIONS



DISTRICT INGOT RATES

(Percentage of Capacity Engaged)

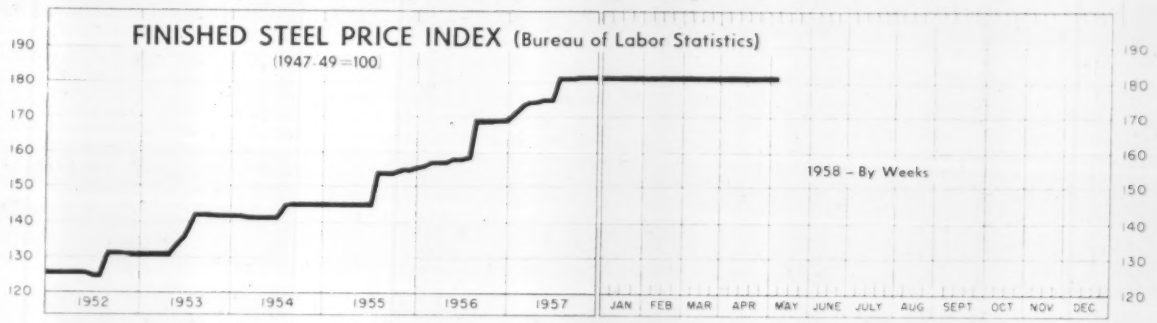
	Week Ended May 11	Change	Same Week 1957	Same Week 1956
Pittsburgh	51	+ 1.5*	92.5	100
Chicago	54.5	— 0.5*	88	99.5
Mid-Atlantic	48	0	95.5	99
Youngstown	44	+ 2	84	98
Wheeling	68	+ 10.5	81.5	101
Cleveland	29.5	0*	86.5	95.5
Buffalo	34.5	0	92.5	105
Birmingham	65	+ 5	95.5	23.5
New England	40	0	56	89
Cincinnati	29	0*	69	93
St. Louis	75.5	+ 7	84	96.5
Detroit	34.5	+ 22.5	82.5	97
Western	67	0	99	109
National Rate	50	+ 2	87	97.5

INGOT PRODUCTION‡

	Week Ended May 11	Week Ago	Month Ago	Year Ago
INDEX (1947-49=100)	84.0†	80.2	81.4	138.2
NET TONS (In thousands)	1,350†	1,289	1,308	2,220

*Change from preceding week's revised rate. †Estimated. ‡American Iron & Steel Institute. Weekly capacity (net tons): 2,699,173 in 1958; 2,559,490 in 1957; 2,461,893 in 1956.

Price Indexes and Composites



May 6, 1958	Week Ago	Month Ago	Apr. Avg	Year Ago
181.6	181.6	181.6	181.6	174.4

AVERAGE PRICES OF STEEL (Bureau of Labor Statistics)

Week Ended May 7

Prices include mill base prices and typical extras and deductions. Units are 100 lb except where otherwise noted in parentheses. For complete description of the following products and extras and deductions applicable to them, write to STEEL.

Rails, Standard No. 1	$5.600	Bars, Reinforcing	6.135
Rails, Light, 40 lb	7.067	Bars, C.F., Carbon	10.360
Tie Plates	6.600	Bars, C.F., Alloy	13.875
Axles, Railway	9.825	Bars, C.F., Stainless, 302 (lb)	0.553
Wheels, Freight Car, 33 in. (per wheel)	60.000	Sheets, H.R., Carbon	6.192
Plates, Carbon	6.150	Sheets, C.R., Carbon	7.089
Structural Shapes	5.942	Sheets, Galvanized	8.270
Bars, Tool Steel, Carbon (lb)	0.535	Sheets, C.R., Stainless, 302 (lb)	0.688
Bars, Tool Steel, Alloy, Oil Hardening Die (lb)	0.650	Sheets, Electrical	12.025
Bars, Tool Steel, H.R., Alloy, High Speed, W 6.75, Cr 4.5, V 2.1, Mo 5.5, C 0.60 (lb)	1.355	Strip, C.R., Carbon	9.243
Bars, Tool Steel, H.R., Alloy, High Speed, W18, Cr 4, V 1 (lb)	1.850	Strip, C.R., Stainless, 430 (lb)	0.493
Bars, H.R., Alloy	10.525	Strip, H.R., Carbon	6.095
Bars, H.R., Stainless, 303 (lb)	0.525	Pipe, Black, Buttweld (100 ft)	19.814
Bars, H.R., Carbon	6.425	Pipe, Galv., Buttweld (100 ft)	23.264
		Pipe, Line (100 ft)	199.023
		Casing, Oil Well, Carbon (100 ft)	194.499
		Casing, Oil Well, Alloy (100 ft)	304.610
		Tubes, Boiler (100 ft)	49.130
		Tubing, Mechanical, Carbon (100 ft)	24.953
		Tubing, Mechanical, Stainless, 304 (100 ft)	205.608
		Tin Plate, Hot-dipped, 1.25 lb (95 lb base box)	9.783
		Tin Plate, Electrolytic, 0.25 lb (95 lb base box)	8.483
		Black Plate, Canmaking Quality (95 lb base box)	7.583
		Wire, Drawn, Carbon	10.225
		Wire, Drawn, Stainless, 430 (lb)	0.653
		Bale Ties (bundles)	7.967
		Nails, Wire, 8d Common	9.828
		Wire, Barbed (80-rod spool)	8.719
		Woven Wire Fence (20-rod roll)	21.737

STEEL's FINISHED STEEL PRICE INDEX*

	May 7 1958	Week Ago	Month Ago	Year Ago	5 Yr Ago
Index (1935-39 avg=100)	239.15	239.15	239.15	228.59	181.31
Index in cents per lb	6.479	6.479	6.479	6.193	4.912

STEEL's ARITHMETICAL PRICE COMPOSITES*

Finished Steel, NT	$145.42	$145.42	$145.42	$140.24	$110.98
No. 2 Fdry Pig Iron, GT	66.49	66.49	66.49	64.70	55.04
Basic Pig Iron, GT	65.99	65.99	65.99	64.23	54.66
Malleable Pig Iron, GT	67.27	67.27	67.27	65.77	55.77
Steelmaking Scrap, GT	33.00	31.83	34.17	44.33	39.67

*For explanation of weighted index see STEEL, Sept. 19, 1949, p. 54; of arithmetical price composite, STEEL, Sept. 1, 1952, p. 130.

Comparison of Prices

Comparative prices by districts, in cents per pound except as otherwise noted. Delivered prices based on nearest production point.

FINISHED STEEL	May 7 1958	Week Ago	Month Ago	Year Ago	5 Yr Ago
Bars, H.R., Pittsburgh	5.425	5.425	5.425	5.075	3.95
Bars, H.R., Chicago	5.425	5.425	5.425	5.075	3.95
Bars, H.R., deld. Philadelphia	5.725	5.725	5.725	5.365	4.502
Bars, C.F., Pittsburgh	7.30*	7.30*	7.30*	6.85*	4.925
Shapes, Std., Pittsburgh	5.275	5.275	5.275	5.00	3.85
Shapes, Std., Chicago	5.275	5.275	5.275	5.00	3.85
Shapes, deld., Philadelphia	5.545	5.545	5.545	5.31	4.13
Plates, Pittsburgh	5.10	5.10	5.10	4.85	3.90
Plates, Chicago	5.10	5.10	5.10	4.85	3.90
Plates, Coatesville, Pa.	5.10	5.10	5.10	5.25	4.35
Plates, Sparrows Point, Md.	5.10	5.10	5.10	4.85	3.90
Plates, Claymont, Del.	5.10	5.10	5.10	5.70	4.35
Sheets, H.R., Pittsburgh	4.925	4.925	4.925	4.675	3.775
Sheets, H.R., Chicago	4.925	4.925	4.925	4.675	3.775
Sheets, C.R., Pittsburgh	6.05	6.05	6.05	5.75	4.575
Sheets, C.R., Chicago	6.05	6.05	6.05	5.75	4.575
Sheets, C.R., Detroit	6.05-6.15	6.05-6.15	6.05-6.15	5.75-5.85	4.775
Sheets, Galv., Pittsburgh	6.60	6.60	6.60	6.30	5.075
Strip, H.R., Pittsburgh	4.925	4.925	4.925	4.675	3.975-4.225
Strip, H.R., Chicago	4.925	4.925	4.925	4.675	3.725
Strip, C.R., Pittsburgh	7.15	7.15	7.15	6.85	5.10-5.80
Strip, C.R., Chicago	7.15	7.15	7.15	6.85	5.35
Strip, C.R., Detroit	7.25	7.25	7.25	6.95	5.30-6.05
Wire, Basic, Pittsburgh	7.65	7.65	7.65	7.20	5.225-5.475
Nails, Wire, Pittsburgh	8.95	8.95	8.95	8.49	6.35
Tin plate (1.50 lb) box, Pitts.	$10.30	$10.30	$10.30	$10.30	$8.95

*Including 0.35c for special quality.

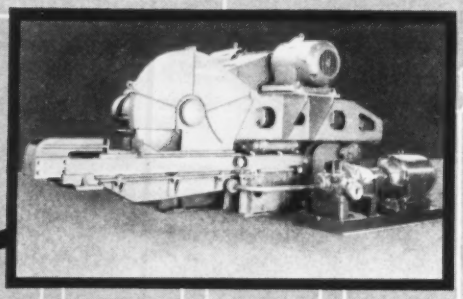
SEMIFINISHED STEEL					
Billets, forging, Pitts. (NT)	$96.00	$96.00	$96.00	$91.50	$70.50
Wire rods, 7/32-5/8" Pitts.	6.15	6.15	6.15	5.80	4.425

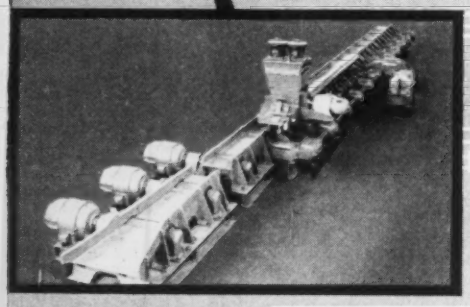
PIG IRON, Gross Ton	May 7 1958	Week Ago	Month Ago	Year Ago	5 Yr Ago
Bessemer, Pitts.	$67.00	$67.00	$67.00	$65.50	$55.50
Basic, Valley	66.00	66.00	66.00	64.50	54.50
Basic, deld., Phila.	70.41	70.41	70.41	68.38	59.25
No. 2 Fdry, NevilleIsland,Pa.	66.50	66.50	66.50	65.00	55.00
No. 2 Fdry, Chicago	66.50	66.50	66.50	65.00	55.00
No. 2 Fdry, deld., Phila.	70.91	70.91	70.91	68.88	59.75
No. 2 Fdry, Birm.	62.50	62.50	62.50	59.00	51.38
No. 2 Fdry (Birm.) deld. Cin.	70.20	70.20	70.20	66.70	58.93
Malleable, Valley	66.50	66.50	66.50	65.00	55.00
Malleable, Chicago	66.50	66.50	66.50	65.00	55.00
Ferromanganese, Duquesne	245.00†	245.00†	245.00†	255.00†	228.00*

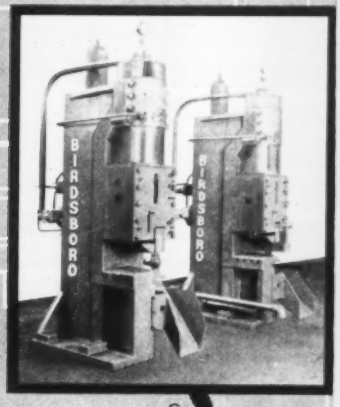
†74-76% Mn, net ton. *75-82% Mn, gross ton, Etna, Pa.

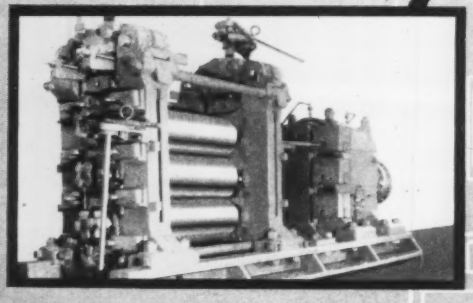
SCRAP, Gross Ton (Including broker's commission)					
No. 1 Heavy Melt, Pittsburgh	$31.50	$31.50	$33.50	$44.50	$39.50
No. 1 Heavy Melt, E. Pa.	34.50	34.50	38.00	49.00	42.00
No. 1 Heavy Melt, Chicago	30.00	29.50	31.00	39.50	37.50
No. 1 Heavy Melt, Valley	33.50	32.50	33.50	41.50	41.50
No. 1 Heavy Melt, Cleve.	30.50	29.50	30.50	38.50	39.00
No. 1 Heavy Melt, Buffalo	26.50	26.50	28.50	41.50	41.75
Rails, Rerolling, Chicago	49.00	48.50	53.50	56.50	49.00
No. 1 Cast, Chicago	38.50	38.50	38.50	39.50	41.50

COKE, Net Ton					
Beehive, Furn., Connisvl.	$15.25	$15.25	$15.25	$15.25	$14.75
Beehive, Fdry., Connisvl.	18.25	18.25	18.25	18.00	17.00









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At Birdsboro modern design-engineering helps you attain the production economies you want on the job. That's why we place such importance on the idea stage of every job, and why we can sell "not just machines, but ideas, too." You'll find many competitive advantages in talking to Birdsboro when your next mill machinery job goes into the works.

Main Office, Engineering Department and Plant: Birdsboro, Pa., *District Office:* Pittsburgh, Pa.

Illustrated above is a portion of a completely integrated Birdsboro merchant bar mill.

a. 54" Hot Saw Gauge b. 54" Hot Saw
c. 100 ton Crop Shears d. 16" 3-Hi Mill Stand

BIRDSBORO
STEEL FOUNDRY AND MACHINE CO.

STEEL MILL MACHINERY • HYDRAULIC PRESSES • CRUSHING MACHINERY • SPECIAL MACHINERY • STEEL CASTINGS • Weldments "CAST-WELD" Design • ROLLS: Steel, Alloy Iron, Alloy Steel

Steel Prices

Mill prices as reported to STEEL, May 7, cents per pound except as otherwise noted. *Changes shown in italics.* Code numbers following mill points indicate producing company. Key to producers, page 132; to footnotes, page 134.

SEMIFINISHED

INGOTS, Carbon, Forging (NT)

Munhall,Pa. U5	$73.50

INGOTS, Alloy (NT)

Detroit S41	77.00
Farrell,Pa. S3	77.00
Lowellville, O. S3	77.00
Midland,Pa. C18	77.00
Munhall,Pa. U5	77.00
Sharon,Pa. S3	77.00

BILLETS, BLOOMS & SLABS
Carbon, Rerolling (NT)

Bessemer,Pa. U5	$77.50
Buffalo R2	77.50
Clairton,Pa. U5	77.50
Ensley,Ala. T2	77.50
Fairfield,Ala. T2	77.50
Fontana,Calif. K1	88.00
Gary,Ind. U5	77.50
Johnstown,Pa. B3	77.50
Lackawanna,N.Y. B2	77.50
Munhall,Pa. U5	77.50
Owensboro,Ky. G8	77.50
S.Chicago,Ill. R2, U5	77.50
S.Duquesne,Pa. U5	77.50
Sterling,Ill. N15	77.50
Youngstown R2	77.50

Carbon, Forging (NT)

Bessemer,Pa. U5	$96.00
Buffalo R2	96.00
Canton,O. R2	98.50
Clairton,Pa. U5	96.00
Conshohocken,Pa. A3	101.00
Ensley,Ala. T2	96.00
Fairfield,Ala. T2	96.00
Fontana,Calif. K1	105.50
Gary,Ind. U5	96.00
Geneva,Utah C11	96.00
Houston S5	101.00
Johnstown,Pa. B2	96.00
Lackawanna,N.Y. B2	96.00
Los Angeles R3	105.50
Midland,Pa. C18	96.00
Munhall,Pa. U5	96.00
Owensboro,Ky. G8	96.00
Seattle B3	109.50
Sharon,Pa. S3	96.00
S.Chicago R2, U5, W14	96.00
S.Duquesne,Pa. U5	96.00
S.SanFrancisco B3	105.50
Warren,O. C17	96.00

Alloy, Forging (NT)

Bethlehem,Pa. B2	$114.00
Bridgeport,Conn. C32	114.00
Buffalo R2	114.00
Canton,O. R2, T7	114.00
Conshohocken,Pa. A3	121.00
Detroit S41	114.00
Economy,Pa. B14	114.00
Farrell,Pa. S3	114.00
Fontana,Calif. K1	135.00
Gary,Ind. U5	114.00
Houston S5	119.00
Ind.Harbor,Ind. Y1	114.00
Johnstown,Pa. B2	114.00
Lackawanna,N.Y. B2	114.00
LosAngeles R3	134.00
Lowellville,O. S3	114.00
Massillon,O. R2	114.00
Midland,Pa. C18	114.00
Munhall,Pa. U5	114.00
Owensboro,Ky. G8	114.00
Sharon,Pa. S3	114.00
S.Chicago R2-U5,W14	114.00
S.Duquesne,Pa. U5	114.00
Struthers,O. Y1	114.00
Warren,O. C17	114.00

ROUNDS, SEAMLESS TUBE (NT)

Buffalo R2	$117.50
Canton,O. R2	120.00
Cleveland R2	117.50
Gary,Ind. U5	117.50
S.Chicago,Ill. R2, W14	117.50
S.Duquesne,Pa. U5	117.50
Warren,O. C17	117.50

SKELP

Aliquippa,Pa. J5	5.075
Munhall,Pa. U5	4.875
Pittsburgh J5	5.075
Warren,O. R2	4.875
Youngstown R2, U5	4.875

WIRE RODS

AlabamaCity,Ala. R2	6.15
Aliquippa,Pa. J5	6.15
Alton,Ill. L1	6.35
Buffalo W12	6.15
Cleveland A7	6.15
Donora,Pa. A7	6.15
Fairfield,Ala. T2	6.15
Houston S5	6.40
IndianaHarbor,Ind. Y1	6.15
Johnstown,Pa. B2	6.15
Joliet,Ill. A7	6.15
KansasCity,Mo. S5	6.40
Kokomo,Ind. C16	6.25
LosAngeles B3	6.95
Minnequa,Colo. C10	6.40
Monessen,Pa. P7	6.15
N.Tonawanda,N.Y. B11	6.15
Pittsburg,Calif. C11	6.95
Portsmouth,O. P12	6.15
Roebling,N.J. R5	6.25
S.Chicago,Ill. R2	6.15
SparrowsPoint,Md. B2	6.25
Sterling,Ill.(1) N15	6.15
Sterling,Ill. N15	6.25
Struthers,O. Y1	6.15
Worcester,Mass. A7	6.45

STRUCTURALS

Carbon Steel Std. Shapes

AlabamaCity,Ala. R2	5.275
Atlanta A11	5.475
Aliquippa,Pa. J5	5.275
Bessemer,Ala. T2	5.275
Bethlehem,Pa. B2	5.325
Birmingham C15	5.275
Clairton,Pa. U5	5.275
Fairfield,Ala. T2	5.275
Fontana,Calif. K1	6.075
Gary,Ind. U5	5.275
Geneva,Utah C11	5.275
Houston S5	5.375
Ind.Harbor,Ind. I-2	5.275
Johnstown,Pa. B2	5.325
Joliet,Ill. P22	5.275
KansasCity,Mo. S5	5.375
Lackawanna,N.Y. B2	5.325
LosAngeles B3	5.975
Minnequa,Colo. C10	5.375
Munhall,Pa. U5	5.275
Niles,Calif. P1	5.925
Phoenixville,Pa. P4	5.325
Portland,Oreg. O4	6.025
Seattle B3	6.925
S.Chicago,Ill. U5, W14	5.275
S.SanFrancisco B3	5.925
Sterling,Ill. N15	5.275
Torrance,Calif. C11	5.975
Weirton,W.Va. W6	5.275

Wide Flange

Bethlehem,Pa. B2	5.325
Clairton,Pa. U5	5.275
Fontana,Calif. K1	6.225
IndianaHarbor,Ind. I-2	5.275
Lackawanna,N.Y. B2	5.325
Munhall,Pa. U5	5.275
Phoenixville,Pa. P4	5.325
S.Chicago,Ill. U5	5.275
Weirton,W.Va. W6	5.275

Alloy Std. Shapes

Aliquippa,Pa. J5	6.55
Clairton,Pa. U5	6.55
Gary,Ind. U5	6.55
Houston S5	6.65
KansasCity,Mo. S5	6.65
Munhall,Pa. U5	6.55
S.Chicago,Ill. U5	6.55

H.S., L.A. Std. Shapes

Aliquippa,Pa. J5	7.75
Bessemer,Ala. T2	7.75
Bethlehem,Pa. B2	7.80
Clairton,Pa. U5	7.75
Fairfield,Ala. T2	7.75
Fontana,Calif. K1	8.55
Gary,Ind. U5	7.75
Geneva,Utah C11	7.75
Houston S5	7.85
Ind.Harbor,Ind. I-2, Y1	7.75
Johnstown,Pa. B2	7.80
KansasCity,Mo. S5	7.85
Lackawanna,N.Y. B2	7.80
LosAngeles B3	8.45
Munhall,Pa. U5	7.75
Seattle B3	8.50
S.Chicago,Ill. U5, W14	7.75
S.SanFrancisco B3	8.40
Struthers,O. Y1	7.75

H.S., L.A. Wide Flange

Bethlehem,Pa. B2	7.80
Lackawanna,N.Y. B2	7.80
Munhall,Pa. U5	7.75
S.Chicago,Ill. U5	7.75

PILING

BEARING PILES

Bethlehem,Pa. B2	5.325
Lackawanna,N.Y. B2	5.325
Munhall,Pa. U5	5.275
S.Chicago,Ill. U5	5.275

STEEL SHEET PILING

Lackawanna,N.Y. B2	6.225
Munhall,Pa. U5	6.225
S.Chicago,Ill. U5	6.225
Weirton,W.Va. W6	6.225

PLATES

PLATES, Carbon Steel

AlabamaCity,Ala. R2	5.10
Aliquippa,Pa. J5	5.10
Ashland,Ky.(15) A10	5.10
Atlanta A11	5.30
Bessemer,Ala. T2	5.10
Clairton,Pa. U5	5.10
Claymont,Del. C22	5.10
Cleveland J5, R2	5.20
Coatesville,Pa. L7	5.10
Conshohocken,Pa. A3	5.20
Ecorse,Mich. G5	5.20
Fairfield,Ala. T2	5.10
Fontana,Calif.(30) K1	5.90
Gary,Ind. U5	5.10
Geneva,Utah C11	5.10
GraniteCity,Ill. G4	5.30
Harrisburg,Pa. P4	5.10
Houston S5	5.20
Ind.Harbor,Ind. I-2, Y1	5.10
Johnstown,Pa. B2	5.10
Lackawanna,N.Y. B2	5.10
LoneStar,Tex. L6	5.20
Mansfield,O. E6	5.10
Minnequa,Colo. C10	5.95
Munhall,Pa. U5	5.10
Newport,Ky. A2	5.10
Pittsburgh J5	5.10
Riverdale,Ill. A1	5.10
Seattle B3	6.00
Sharon,Pa. S3	5.10
S.Chicago,Ill. U5, W14	5.10
SparrowsPoint,Md. B2	5.10
Sterling,Ill. N15	5.10
Steubenville,O. W10	5.10
Warren,O. R2	5.10
Youngstown U5, Y1	5.10

PLATES, Carbon Abras. Resist.

Claymont,Del. C22	6.75
Fontana,Calif. K1	7.55
Geneva,Utah C11	6.75
Houston S5	6.85
Johnstown,Pa. B2	6.75
SparrowsPoint,Md. B2	6.75

PLATES, Wrought Iron

Economy,Pa. B14	13.15

PLATES, H.S., L.A.

Aliquippa,Pa. J5	7.625
Bessemer,Ala. T2	7.625
Clairton,Pa. U5	7.625
Claymont,Del. C22	7.625
Cleveland J5, R2	7.625
Coatesville,Pa. L7	7.625
Conshohocken,Pa. A3	7.625
Economy,Pa. B14	7.625
Ecorse,Mich. G5	7.725
Fairfield,Ala. T2	7.625
Farrell,Pa. S3	7.625
Fontana,Calif.(30) K1	8.425
Gary,Ind. U5	7.625
Geneva,Utah C11	7.625
Houston S5	7.725
Ind.Harbor,Ind. I-2, Y1	7.625
Johnstown,Pa. B2	7.625
Munhall,Pa. U5	7.625
Pittsburgh J5	7.625
Seattle B3	8.525
Sharon,Pa. S3	7.625
S.Chicago,Ill. U5, W14	7.625
SparrowsPoint,Md. B2	7.625
Warren,O. R2	7.625
Youngstown U5	7.625

PLATES, ALLOY

Aliquippa,Pa. J5	7.20
Claymont,Del. C22	7.20
Coatesville,Pa. L7	7.20
Economy,Pa. B14	7.20
Fontana,Calif. K1	8.00
Gary,Ind. U5	7.20
Houston S5	7.30
Ind.Harbor,Ind. Y1	7.20
Johnstown,Pa. B2	7.20
Lowellville,O. S3	7.20
Munhall,Pa. U5	7.20
Newport,Ky. A2	7.20
Pittsburgh J5	7.20
Seattle B3	8.10
Sharon,Pa. S3	7.20
S.Chicago,Ill. U5, W14	7.20
SparrowsPoint,Md. B2	7.20
Youngstown Y1	7.20

FLOOR PLATES

Cleveland J5	6.175
Conshohocken,Pa. A3	6.175
Ind.Harbor,Ind. I-2	6.175
Munhall,Pa. U5	6.175
S.Chicago,Ill. U5	6.175

PLATES, Ingot Iron

Ashland c.l.(15) A10	5.35
Ashland l.c.l.(15) A10	5.85
Cleveland c.l. R2	5.85
Warren,O. c.l. R2	5.85

BARS

BARS, Hot-Rolled Carbon (Merchant Quality)

Ala.City,Ala.(9) R2	5.425
Aliquippa,Pa.(9) J5	5.425
Alton,Ill. L1	5.625
Atlanta(9) A11	5.625
Bessemer,Ala.(9) T2	5.425
Birmingham(9) C15	5.425
Buffalo(9) R2	5.425
Clairton,Pa.(9) U5	5.425
Cleveland(9) R2	5.425
Ecorse,Mich.(9) G5	5.525
Emeryville,Calif. J7	6.175
Fairfield,Ala.(9) T2	5.425
Fairless,Pa.(9) U5	5.575
Fontana,Calif.(9) K1	6.125
Gary,Ind.(9) U5	5.425
Houston(9) S5	5.675
Ind.Harbor(9) I-2, Y1	5.425
Johnstown,Pa.(9) B2	5.425
Joliet,Ill. P22	5.425
KansasCity,Mo.(9) S5	5.675
Lackawanna(9) B2	5.425
LosAngeles(9) B3	6.125
Midland,Pa.(23) C18	5.725
Milton,Pa. M18	5.575
Minnequa,Colo. C10	5.875
Niles,Calif. P1	6.125
N.Tonawanda,N.Y.(23) B11	5.775
Owensboro,Ky.(9) G8	5.425
Pittsburg,Calif.(9) C11	6.125
Pittsburgh(9) J5	5.425
Portland,Oreg. O4	6.175
Seattle B3, N14	6.175
S.Chicago(9) R2,U5,W14	5.425
S.Duquesne,Pa.(9) U5	5.425
S.SanFran.,Calif.(9) B3	6.175
Sterling,Ill.(1)(9) N15	5.425
Sterling,Ill.(9) N15	5.525
Struthers,O.(9) Y1	5.425
Tonawanda,N.Y. B12	5.425
Torrance,Calif.(9) C11	6.125
Youngstown(9) R2, U5	5.425

BARS, H.R. Leaded Alloy (Including leaded extra)

Warren,O. C17	7.475

BARS, Hot-Rolled Alloy

Aliquippa,Pa. J5	6.475
Bethlehem,Pa. B2	6.475
Bridgeport,Conn. C32	6.55
Buffalo R2	6.475
Canton,O. R2, T7	6.475
Clairton,Pa. U5	6.475
Detroit S41	6.475
Economy,Pa. B14	6.475
Ecorse,Mich. G5	6.575
Fairless,Pa. U5	6.625
Farrell,Pa. S3	6.475
Fontana,Calif. K1	7.525
Gary,Ind. U5	6.475
Houston S5	6.725
Ind.Harbor,Ind. I-2, Y1	6.475
Johnstown,Pa. B2	6.475
KansasCity,Mo. S5	6.725
Lackawanna,N.Y. B2	6.475
Lowellville,O. S3	6.475
LosAngeles B3	7.525
Massillon,O. R2	6.475
Midland,Pa. C18	6.475
Owensboro,Ky. G8	6.475
Pittsburgh J5	6.475
Sharon,Pa. S3	6.475
S.Chicago R2, U5, W14	6.475
S.Duquesne,Pa. U5	6.475
Struthers,O. Y1	6.475
Warren,O. C17	6.475
Youngstown U5	6.475

BARS & SMALL SHAPES, H.R. High-Strength, Low-Alloy

Aliquippa,Pa. J5	7.925
Bessemer,Ala. T2	7.925
Bethlehem,Pa. B2	7.925
Clairton,Pa. U5	7.925
Cleveland R2	7.925
Ecorse,Mich. G5	8.025
Fairfield,Ala. T2	7.925
Fontana,Calif. K1	8.625
Gary,Ind. U5	7.925
Houston S5	8.175
Ind.Harbor,Ind. Y1	7.925
Johnstown,Pa. B2	7.925
KansasCity,Mo. S5	8.175
Lackawanna,N.Y. B2	7.925
LosAngeles B3	8.625
Pittsburgh J5	7.925
Seattle B3	8.675
S.Chicago,Ill. U5, W14	7.925
S.Duquesne,Pa. U5	7.925
S.SanFrancisco B3	8.675
Struthers,O. Y1	7.925
Youngstown U5	7.925

BAR SIZE ANGLES; H.R. Carbon

Bethlehem,Pa.(9) B2	5.575
Houston(9) S5	5.675
KansasCity,Mo.(9) S5	5.675
Lackawanna(9) B2	5.425
Sterling,Ill. N15	5.525
Sterling,Ill.(1) N15	5.425
Tonawanda,N.Y. B12	5.425

BAR SIZE ANGLES; S. Shapes

Aliquippa,Pa. J5	5.425
Atlanta A11	5.625
Joliet,Ill. P22	5.425
Niles,Calif. P1	6.125
Pittsburgh J5	5.425
Portland,Oreg. O4	6.175
SanFrancisco S7	6.275
Seattle B3	6.175

BAR SHAPES, Hot-Rolled Alloy

Aliquippa,Pa. J5	6.55
Clairton,Pa. U5	6.55
Gary,Ind. U5	6.55
Houston S5	6.80
KansasCity,Mo. S5	6.80
Pittsburgh J5	6.55
Youngstown U5	6.55

BARS, C.F., Leaded Alloy (Including leaded extra)

Ambridge,Pa. W18	9.925
BeaverFalls,Pa. M12	9.925
Camden,N.J. P13	10.10
Chicago W18	9.925
Cleveland C20	9.925*
Elyria,O. W8	9.925
LosAngeles P2, S30	11.10*
Monaca,Pa. S17	9.925
Newark,N.J. W18	10.10
SpringCity,Pa. K3	10.10
Warren,O. C17	9.925

*Grade A; add 0.50¢ for Grade B.

BARS, Cold-Finished Carbon

Ambridge,Pa. W18	7.30
BeaverFalls,Pa. M12,R2	7.30
Birmingham C15	7.50
Buffalo R5	7.35
Camden,N.J. P13	7.75
Carnegie,Pa. C12	7.30
Chicago W18	7.30
Cleveland A7, C20	7.30
Detroit B5, P17	7.50
Detroit S41	7.30
Donora,Pa. A7	7.30
Elyria,O. W8	7.30
FranklinPark,Ill. N5	7.30
Gary,Ind. R2	7.30
GreenBay,Wis. F7	7.30
Hammond,Ind. J5, L2	7.30
Hartford,Conn. R2	7.80
Harvey,Ill. B5	7.30
LosAngeles(19) S30	8.75
LosAngeles P2, R2	8.75
Mansfield,Mass. B5	7.85
Massillon,O. R2, R8	7.30
Midland,Pa. C18	7.30
Monaca,Pa. S17	7.30
Newark,N.J. W18	7.75
NewCastle,Pa.(17) B4	7.30
Pittsburgh J5	7.30
Plymouth,Mich. P5	7.55
Putnam,Conn. W18	7.85
Readville,Mass. C14	7.85
S.Chicago,Ill. W14	7.30
SpringCity,Pa. K3	7.75
Struthers,O. Y1	7.30
Warren,O. C17	7.30
Willimantic,Conn. J5	7.80
Waukegan,Ill. A7	7.30
Youngstown F3, Y1	7.30

BARS, Cold-Finished Carbon (Turned and Ground)

Cumberland,Md.(5) C19	6.55

BARS, Cold-Finished Alloy

Ambridge,Pa. W18	8.775
BeaverFalls,Pa. M12,R2	8.775
Bethlehem,Pa. B2	8.775
Bridgeport,Conn. C32	8.925
Buffalo R5	8.775
Camden,N.J. P13	8.95
Canton,O. T7	8.775
Carnegie,Pa. C12	8.775
Chicago W18	8.775
Cleveland A7, C20	8.775
Detroit B5, P17	8.975
Detroit S41	8.775
Donora,Pa. A7	8.775
Elyria,O. W8	8.775
FranklinPark,Ill. N5	8.775
Gary,Ind. R2	8.775
GreenBay,Wis. F7	8.775
Hammond,Ind. J5, L2	8.775
Hartford,Conn. R2	9.075
Harvey,Ill. B5	8.775
Lackawanna,N.Y. B2	8.775
LosAngeles P2, S30	10.75
Mansfield,Mass. B5	9.075
Massillon,O. R2, R8	8.775
Midland,Pa. C18	8.775
Monaca,Pa. S17	8.775
Newark,N.J. W18	8.95
Plymouth,Mich. P5	8.975
S.Chicago,Ill. W14	8.775
SpringCity,Pa. K3	8.95
Struthers,O. Y1	8.775
Warren,O. C17	8.775
Waukegan,Ill. A7	8.775
Willimantic,Conn. J5	9.075
Worcester,Mass. A7	9.075
Youngstown F3, Y1	8.775

BARS, Reinforcing (To Fabricators)

AlabamaCity,Ala. R2 ..5.425
Atlanta A11 .....5.425
Birmingham C15 .....5.425
Buffalo R2 .....5.425
Cleveland R2 .....5.425
Ecorse,Mich. G5 .....5.775
Emeryville,Calif. J7 ...6.175
Fairfield,Ala. T2 .....5.425
Fairless,Pa. U5 .....5.575
Fontana,Calif. K1 .....6.125
Ft.Worth,Tex.(4)(26)T15.875
Gary,Ind. U5 .....5.425
Houston S5 .....5.675
Ind.Harbor,Ind. I-2, Y1 5.425
Johnstown,Pa. B2 .....5.425
Joliet,Ill. P22 .....5.425
KansasCity,Mo. S5 ..5.675
Kokomo,Ind. C16 .....5.525
Lackawanna,N.Y. B2 ..5.425
LosAngeles B3 .....6.125
Milton,Pa. M18 .....5.575
Minnequa,Colo. C10 ..5.875
Niles,Calif. P1 .....6.125
Pittsburg,Calif. C11 ...6.125
Pittsburgh J5 .....5.425
Portland,Oreg. O4 .....6.175
SandSprings,Okla. S5 ..5.925
Seattle B3, N14 .....6.175
S.Chicago,Ill. R2 .....5.425
S.Duquesne,Pa. U5 ....5.425
S.SanFrancisco B3 ....6.175
SparrowsPoint,Md. B2..5.425
Sterling,Ill.(4) N15 ...5.425
Sterling,Ill. N15 .....5.525
Struthers,O. Y1 .....5.425
Tonawanda,N.Y. B12 ..6.00
Torrance,Calif. C11 ...6.125
Youngstown R2, U5 ..5.425

BARS, Reinforcing (Fabricated; to Consumers)

Boston B2, U8 .....7.65
Chicago U8 .....6.94
Cleveland U8 .....6.89
Houston S5 .....7.35
Johnstown,Pa. B2 .....7.08
KansasCity,Mo. S5 ....7.35
Lackawanna,N.Y. B2 ..6.85
Marion,O. P11 .....6.70
Newark,N.J. U8 .....7.55
Philadelphia U8 .....7.38
Pittsburgh J5, U8 .....7.10
SandSprings,Okla. S5 ...7.60
Seattle B3, N14 .....7.70
SparrowsPt.,Md. B2 ....7.08
St.Paul U8 .....7.92
Williamsport,Pa. S19 ..7.00

BARS, Wrought Iron

Economy,Pa.(S.R.)B14 14.45
Economy,Pa.(D.R.)B14 18.00
Economy(Staybolt)B14, 18.45

RAIL STEEL BARS

ChicagoHts.(3) C2, I-2..5.325
ChicagoHts.(4)(44) I-2..5.425
ChicagoHts.(4) C2 ....5.425
Franklin,Pa.(3) F5 ...5.325
Franklin,Pa.(4) F5 ...5.425
JerseyShore,Pa.(3) J8 ..5.30
Marion,O.(3) P11 .....5.325
Tonawanda(3) B12 ....5.325
Tonawanda(4) B12 .....6.00
Williamsport,Pa.(3) S19..5.50

SHEETS

SHEETS, Hot-Rolled Steel (18 Gage and Heavier)

AlabamaCity,Ala. R2 ..4.925
Allenport,Pa. P7 .....4.925
Ashland,Ky.(8) A10 ...4.925
Cleveland J5, R2 .....4.925
Conshohocken,Pa. A3 ..4.975
Detroit(8) M1 .....5.025
Ecorse,Mich. G5 .....5.025
Fairfield,Ala. T2 .....4.925
Fairless,Pa. U5 .....4.975
Fontana,Calif. K1 ....5.675
Gary,Ind. U5 .....4.925
Geneva,Utah C11 .....5.025
GraniteCity,Ill.(8) G4 ..5.125
Ind.Harbor,Ind. I-2, Y1 4.925
Irvin,Pa. U5 .....4.925
Lackawanna,N.Y. B2 ..4.925
Mansfield,O. E6 .....4.925
Munhall,Pa. U5 .....4.925
Newport,Ky.(8) A2 ....4.925
Niles,O. M21, S3 .....4.925
Pittsburg,Calif. C11 ...5.625
Pittsburgh J5 .....4.925
Portsmouth,O. P12 .....4.925
Riverdale,Ill. A1 .....4.925
Sharon,Pa. S3 .....4.925
S.Chicago,Ill. W14 .....4.925
SparrowsPoint,Md. B2..4.925
Steubenville,O. W10 ...4.925
Warren,O. R2 .....4.925
Weirton,W.Va. W6 .....4.925
Youngstown U5, Y1 ...4.925

SHEETS, H.R. (19) Ga. & Lighter

Niles,O. M21 .....6.05

SHEETS, H.R. Alloy

Gary,Ind. U5 .....8.10
Ind.Harbor,Ind. Y1 ....8.10
Irvin,Pa. U5 .....8.10
Munhall,Pa. U5 .....8.10
Newport,Ky. A2 .....8.10
Youngstown U5, Y1 ....8.10

SHEETS, H.R. (14 Ga. & Heavier) High-Strength, Low-Alloy

Cleveland J5, R2 .....7.275
Conshohocken,Pa. A3 ..7.325
Ecorse,Mich. G5 .....7.375
Fairfield,Ala. T2 .....7.275
Fairless,Pa. U5 .....7.325
Farrell,Pa. S3 .....7.275
Fontana,Calif. K1 ....8.025
Gary,Ind. U5 .....7.275
Ind.Harbor,Ind. I-2, Y1 7.275
Irvin,Pa. U5 .....7.275
Lackawanna(35) B2 ..7.275
Munhall,Pa. U5 .....7.275
Pittsburgh J5 .....7.275
S.Chicago,Ill. U5, W14 7.275
Sharon,Pa. S3 .....7.275
SparrowsPoint(36) B2..7.275
Warren,O. R2 .....7.275
Weirton,W.Va. W6 .....7.275
Youngstown U5, Y1 ...7.275

SHEETS, Hot-Rolled Ingot Iron (18 Gage and Heavier)

Ashland,Ky.(8) A10 ..5.175
Cleveland R2 .....5.675
Warren,O. R2 .....5.675

SHEETS, Cold-Rolled Ingot Iron

Cleveland R2 .....6.80
Middletown,O. A10 ....6.55
Warren,O. R2 .....6.80

SHEETS, Cold-Rolled Steel (Commercial Quality)

AlabamaCity,Ala. R2 ..6.05
Allenport,Pa. P7 .....6.05
Cleveland J5, R2 .....6.05
Conshohocken,Pa. A3 ..6.10
Detroit M1 .....6.05
Ecorse,Mich. G5 .....6.15
Fairfield,Ala. T2 .....6.05
Fairless,Pa. U5 .....6.10
Follansbee,W.Va. F4 ..6.05
Fontana,Calif. K1 ....7.30
Gary,Ind. U5 .....6.05
GraniteCity,Ill. G4 ....6.25
Ind.Harbor,Ind. I-2, Y1 6.05
Irvin,Pa. U5 .....6.05
Lackawanna,N.Y. B2 ..6.05
Mansfield,O. E6 .....6.05
Middletown,O. A10 ....6.05
Newport,Ky. A2 .....6.05
Pittsburg,Calif. C11 ...7.00
Pittsburgh J5 .....6.05
Portsmouth,O. P12 .....6.05
SparrowsPoint,Md. B2 ..6.05
Steubenville,O. W10 ...6.05
Warren,O. R2 .....6.05
Weirton,W.Va. W6 .....6.05
Yorkville,O. W10 .....6.05
Youngstown Y1 .....6.05

SHEETS, Cold-Rolled, High-Strength, Low Alloy

Cleveland J5, R2 .....8.975
Ecorse,Mich. G5 .....9.075
Fairless,Pa. U5 .....9.025
Fontana,Calif. K1 ....10.275
Gary,Ind. U5 .....8.975
IndianaHarbor,Ind. Y1..8.975
Irvin,Pa. U5 .....8.975
Lackawanna(37) B2 ..8.975
Pittsburgh J5 .....8.975
SparrowsPoint(38) B2..8.975
Warren,O. R2 .....8.975
Weirton,W.Va. W6 .....8.975
Youngstown Y1 .....8.975

SHEETS, Culvert	Cu Steel	Cu Fe
Ashland,Ky. A10	6.95	7.20
Canton,O. R2	6.95	7.45
Fairfield T2	6.95	7.20
Gary,Ind. U5	6.95	7.20
GraniteCity,Ill. G4	7.15	...
Ind.Harbor I-2	6.95	7.20
Irvin,Pa. U5	6.95	7.20
Kokomo,Ind. C16	7.05	...
MartinsFry. W10	6.95	7.20
Pitts.,Calif. C11	7.70	...
Pittsburgh J5	6.95	...
SparrowsPt. B2	6.95	...

SHEETS, Culvert—Pure Iron

Ind.Harbor,Ind. I-2 .....7.20

SHEETS, Galvanized Steel Hot-Dipped

AlabamaCity,Ala. R2 ..6.60†
Ashland,Ky. A10 .....6.60†
Canton,O. R2 .....6.60†
Dover,O. E6 .....6.60†
Fairfield,Ala. T2 .....6.60†
Gary,Ind. U5 .....6.60†
GraniteCity,Ill. G4 ....6.80*
Ind.Harbor,Ind. I-2 ....6.60†
Irvin,Pa. U5 .....6.60†
Kokomo,Ind. C16 .....6.70‡
MartinsFerry,O. W10 ..6.60*
Middletown,O. A10 ....6.60†
Pittsburg,Calif. C11 ...7.35*
Pittsburgh J5 .....6.60†
SparrowsPt.,Md. B2 ....6.60†
Warren,O. R2 .....6.60†
Weirton,W.Va. W6 .....6.60*

*Continuous and noncontinuous. †Continuous. ‡Noncontinuous.

SHEETS, Well Casing

Fontana,Calif. K1 .....7.175

SHEETS, Galvanized High-Strength, Low-Alloy

Irvin,Pa. U5 .....9.725
SparrowsPt.(39) B2 ....9.725

SHEETS, Galvannealed Steel

Canton,O. R2 .....7.00
Irvin,Pa. U5 .....7.00

SHEETS, Galvanized Ingot Iron (Hot-Dipped Continuous)

Ashland,Ky. A10 .....6.85
Middletown,O. A10 .....6.85

SHEETS, Electrogalvanized

Cleveland(28) R2 .....7.425
Niles,O.(28) R2 .....7.425
Youngstown J5 .....7.275
Weirton,W.Va. W6 .....7.275

SHEETS, Aluminum Coated

Butler,Pa.A10 (type 1) .. 9.25
Butler,Pa. A10 (type 2) .. 9.35

SHEETS, Enameling Iron

Ashland,Ky. A10 .....6.625
Cleveland R2 .....6.625
Fairfield,Ala. T2 .....6.625
Gary,Ind. U5 .....6.625
GraniteCity,Ill. G4 ....6.825
Ind.Harbor,Ind. I-2, Y1 6.625
Irvin,Pa. U5 .....6.625
Middletown,O. A10 ....6.625
Niles,O. M21, S3 .....6.625
Youngstown Y1 .....6.625

BLUED STOCK, 29 Gage

Follansbee,W.Va. F4 ..8.65
Ind.Harbor,Ind. I-2 ..8.475
Yorkville,O. W10 .....8.475

SHEETS, Long Terne, Steel (Commercial Quality)

BeechBottom,W.Va.W10 7.00
Gary,Ind. U5 .....7.00
Mansfield,O. E6 .....7.00
Middletown,O. A10 ....7.00
Niles,O. M21, R2, S3..7.00
Weirton,W.Va. W6 .....7.00

SHEETS, Long Terne, Ingot Iron

Middletown,O. A10 .....7.40

Key To Producers

A1 Acme Steel Co.
A2 Acme-Newport Steel Co.
A3 Alan Wood Steel Co.
A4 Allegheny Ludlum Steel
A5 Alloy Metal Wire Div., H. K. Porter Co. Inc.
A6 American Shim Steel Co.
A7 American Steel & Wire Div., U. S. Steel Corp.
A8 Anchor Drawn Steel Co.
A9 Angell Nail & Chaplet
A10 Armco Steel Corp.
A11 Atlantic Steel Co.

B1 Babcock & Wilcox Co.
B2 Bethlehem Steel Co.
B3 Beth. Pac. Coast Steel
B4 Blair Strip Steel Co.
B5 Bliss & Laughlin Inc.
B8 Braeburn Alloy Steel
B9 Brainard Steel Div., Sharon Steel Corp.
B10 E. & G. Brooke, Wickwire Spencer Steel Div., Colo. Fuel & Iron
B11 Buffalo Bolt Co., Div., Buffalo Eclipse Corp.
B12 Buffalo Steel Corp.
B14 A. M. Byers Co.
B15 J. Bishop & Co.

C1 Calstrip Steel Corp.
C2 Calumet Steel Div., Borg-Warner Corp.
C4 Carpenter Steel Co.
C9 Colonial Steel Co.
C10 Colorado Fuel & Iron
C11 Columbia-Geneva Steel
C12 Columbia Steel & Shaft.
C13 Columbia Tool Steel Co.
C14 Compressed Steel Shaft.
C15 Connors Steel Div., H. K. Porter Co. Inc.
C16 Continental Steel Corp.
C17 Copperweld Steel Co.
C18 Crucible Steel Co.
C19 Cumberland Steel Co.
C20 Cuyahoga Steel & Wire
C22 Claymont Plant, Wickwire Spencer Steel Div., Colo. Fuel & Iron
C23 Charter Wire Inc.
C24 G. O. Carlson Inc.
C32 Carpenter Steel of N.Eng.

D2 Detroit Steel Corp.
D3 Dearborn Div., Sharon Steel Corp.
D4 Disston Div., H. K. Porter Co. Inc.
D6 Driver-Harris Co.
D7 Dickson Weatherproof Nail Co.
D8 Damascus Tube Co.
D9 Wilbur B. Driver Co.

E1 Eastern Gas & Fuel Assoc.
E2 Eastern Stainless Steel
E4 Electro Metallurgical Co.
E5 Elliott Bros. Steel Co.
E6 Empire-Reeves Steel Corp.

F2 Firth Sterling Inc.
F3 Fitzsimmons Steel Co.
F4 Follansbee Steel Corp.
F5 Franklin Steel Div., Borg-Warner Corp.
F6 Fretz-Moon Tube Co.
F7 Ft. Howard Steel & Wire
F8 Ft. Wayne Metals Inc.

G4 Granite City Steel Co.
G5 Great Lakes Steel Corp.
G6 Greer Steel Co.
G8 Green River Steel Corp.

H1 Hanna Furnace Corp.
H7 Helical Tube Co.

I-1 Igoe Bros. Inc.
I-2 Inland Steel Co.
I-3 Interlake Iron Corp.
I-4 Ingersoll Steel Div., Borg-Warner Corp.
I-6 Ivins Steel Tube Works
I-7 Indiana Steel & Wire Co.

J1 Jackson Iron & Steel Co.
J3 Jessop Steel Co.
J4 Johnson Steel & Wire Co.
J5 Jones & Laughlin Steel
J6 Joslyn Mfg. & Supply
J7 Judson Steel Corp.
J8 Jersey Shore Steel Co.

K1 Kaiser Steel Corp.
K2 Keokuk Electro-Metals
K3 Keystone Drawn Steel
K4 Keystone Steel & Wire
K7 Kenmore Metals Corp.

L1 Laclede Steel Co.
L2 LaSalle Steel Co.
L3 Latrobe Steel Co.
L6 Lone Star Steel Co.
L7 Lukens Steel Co.

M1 McLouth Steel Corp.
M4 Mahoning Valley Steel
M6 Mercer Pipe Div., Sawhill Tubular Products
M8 Mid-States Steel & Wire
M12 Moltrup Steel Products
M14 McInnes Steel Co.
M16 Md. Fine & Special Wire
M17 Metal Forming Corp.
M18 Milton Steel Div., Merritt-Chapman&Scott
M21 Mallory-Sharon Metals Corp.
M22 Mill Strip Products Co.

N1 National-Standard Co.
N2 National Supply Co.
N3 National Tube Div., U. S. Steel Corp.
N5 Nelsen Steel & Wire Co.
N6 New England High Carbon Wire Co.
N8 Newman-Crosby Steel
N14 Northwest. Steel Rolling Mills Inc.
N15 Northwestern S.&W. Co.
N20 Neville Ferro Alloy Co.

O4 Oregon Steel Mills

P1 Pacific States Steel Corp.
P2 Pacific Tube Co.
P4 Phoenix Iron & Steel Co., Sub. of Barium Steel Corp.
P5 Pilgrim Drawn Steel
P6 Pittsburgh Coke & Chem.
P7 Pittsburgh Steel Co.
P11 Pollak Steel Co.
P12 Portsmouth Div., Detroit Steel Corp.
P13 Precision Drawn Steel
P14 Pitts. Screw & Bolt Co.
P15 Pittsburgh Metallurgical
P16 Page Steel & Wire Div., American Chain & Cable
P17 Plymouth Steel Corp.
P19 Pitts. Rolling Mills
P20 Prod. Steel Strip Corp.
P22 Phoenix Mfg. Co.
P24 Phil. Steel & Wire Corp.

R2 Republic Steel Corp.
R3 Rhode Island Steel Corp.
R5 Roebling's Sons, John A.
R6 Rome Strip Steel Co.
R8 Reliance Div., Eaton Mfg.
R9 Rome Mfg. Co.
R10 Rodney Metals Inc.

S1 Seneca Wire & Mfg. Co.
S3 Sharon Steel Corp.
S4 Sharon Tube Co.
S5 Sheffield Div., Armco Steel Corp.
S6 Shenango Furnace Co.
S7 Simmons Co.
S8 Simonds Saw & Steel Co.
S12 Spencer Wire Corp.
S13 Standard Forgings Corp.
S14 Standard Tube Co.
S15 Stanley Works
S17 Superior Drawn Steel Co.
S18 Superior Steel Div., Copperweld Steel Co.
S19 Sweet's Steel Co.
S20 Southern States Steel
S23 Superior Tube Co.
S25 Stainless Welded Prod.
S26 Specialty Wire Co. Inc.
S30 Sierra Drawn Steel Corp.
S40 Seneca Steel Service
S41 Stainless Steel Div., J&L Steel Corp.
S42 Southern Elec. Steel Co.

T2 Tenn. Coal & Iron Div., U. S. Steel Corp.
T3 Tenn. Products & Chemical Corp.
T4 Texas Steel Co.
T5 Thomas Strip Div., Pittsburgh Steel Co.
T6 Thompson Wire Co.
T7 Timken Roller Bearing
T9 Tonawanda Iron Div., Am. Rad. & Stan. San.
T13 Tube Methods Inc.
T19 Techalloy Co. Inc.

U4 Universal-Cyclops Steel
U5 United States Steel Corp.
U6 U. S. Pipe & Foundry
U7 Ulbrich Stainless Steels
U8 U.S. Steel Supply Div., U. S. Steel Corp.

V2 Vanadium-Alloys Steel
V3 Vulcan-Kidd Steel Div., H. K. Porter Co.

W1 Wallace Barnes Co.
W2 Wallingford Steel Co.
W3 Washburn Wire Co.
W4 Washington Steel Corp.
W6 Weirton Steel Co.
W8 Western Automatic Machine Screw Co.
W9 Wheatland Tube Co.
W10 Wheeling Steel Corp.
W12 Wickwire Spencer Steel Div., Colo. Fuel & Iron
W13 Wilson Steel & Wire Co.
W14 Wisconsin Steel Div., International Harvester
W15 Woodward Iron Co.
W18 Wyckoff Steel Co.

Y1 Youngstown Sheet & Tube

STRIP

STRIP, Hot-Rolled Carbon

Ala.City,Ala.(27) R2	4.925
Allenport,Pa. P7	4.925
Alton,Ill. L1	5.125
Ashland,Ky.(8) A10	4.925
Atlanta A11	4.925
Bessemer,Ala. T2	4.925
Birmingham C15	4.925
Buffalo(27) R2	4.925
Conshohocken,Pa. A3	4.975
Detroit M1	5.025
Ecorse,Mich. G5	5.025
Fairfield,Ala. T2	4.925
Fontana,Calif. K1	5.675
Gary,Ind. U5	4.925
Ind.Harbor,Ind. I-2, Y1	4.925
Johnstown,Pa.(25) B2	4.925
Lackaw'na,N.Y.(25) B2	4.925
LosAngeles(25) B3	5.675
Minnequa,Colo. C10	6.025
Riverdale,Ill. A1	4.925
SanFrancisco S7	6.35
Seattle(25) B3	5.925
Seattle N14	6.35
Sharon,Pa. S3	4.925
S.Chicago W14	4.925
S.SanFrancisco(25) B3	5.675
SparrowsPoint,Md. B2	4.925
Sterling,Ill.(1) N15	4.925
Sterling,Ill. N15	5.025
Torrance,Calif. C11	5.675
Warren,O. R2	4.925
Weirton,W.Va. W6	4.925
Youngstown U5	4.925

STRIP, Hot-Rolled Alloy

Carnegie,Pa. S18	8.10
Farrell,Pa. S3	8.10
Gary,Ind. U5	8.10
Houston S5	8.35
Ind.Harbor,Ind. Y1	8.10
KansasCity,Mo. S5	8.35
LosAngeles B3	9.30
Lowellville,O. S3	8.10
Newport,Ky. A2	8.10
Sharon,Pa. A2, S3	8.10
S.Chicago,Ill. W14	8.10
Youngstown U5, Y1	8.10

STRIP, Hot-Rolled High-Strength, Low-Alloy

Bessemer,Ala. T2	7.325
Conshohocken,Pa. A3	7.325
Ecorse,Mich. G5	7.425
Fairfield,Ala. T2	7.325
Farrell,Pa. S3	7.325
Gary,Ind. U5	7.325
Ind.Harbor,Ind. I-2, Y1	7.325
Lackawanna,N.Y. B2	7.325
LosAngeles(25) B3	8.075
Seattle(25) I3	8.325
Sharon,Pa. S3	7.325
S.Chicago,Ill. W14	7.325
S.SanFrancisco(25) B3	8.075
SparrowsPoint,Md. B2	7.325
Warren,O. R2	7.325
Weirton,W.Va. W6	7.325
Youngstown U5, Y1	7.325

STRIP, Hot-Rolled Ingot Iron

Ashland,Ky.(8) A10	5.175
Warren,O. R2	5.675

STRIP, Cold-Rolled Carbon

Anderson,Ind. G6	7.15
Baltimore T6	7.15
Boston T6	7.70
Buffalo S10	7.15
Cleveland A7, J5	7.15
Conshohocken,Pa. A3	7.20
Dearborn,Mich. D3	7.25
Detroit D2, M1, P20	7.25
Dover,O. G6	7.15
Ecorse,Mich. G5	7.25
Evanston,Ill. M22	7.25
Follansbee,W.Va. F4	7.15
Fontana,Calif. K1	9.00
FranklinPark,Ill. T6	7.25
Ind.Harbor,Ind. Y1	7.15
Indianapolis J5	7.30
LosAngeles J5	9.05
LosAngeles C1	9.20
NewBedford,Mass. R10	7.60
NewBritain,Conn. S15	7.60
NewCastle,Pa. B4, E5	7.15
NewHaven,Conn. D2	7.60
NewKensington,Pa. A6	7.15
Pawtucket,R.I. R3	7.80
Pawtucket,R.I. N8	7.70
Philadelphia P24	7.70
Pittsburgh J5	7.15
Riverdale,Ill. A1	7.25
Rome,N.Y.(32) R6	7.15
Sharon,Pa. S3	7.15
Trenton,N.J.(31) R5	7.60
Wallingford,Conn. W2	7.60
Warren O. R2, T5	7.15
Weirton,W.Va. W6	7.15
Worcester,Mass. A7	7.70
Youngstown J5, Y1	7.15

STRIP, Cold-Rolled Alloy

Boston T6	15.40
Carnegie,Pa. S18	15.05
Cleveland A7	15.05
Dover,O. G6	15.05
Farrell,Pa. S3	15.05
FranklinPark,Ill. T6	15.05
Harrison,N.J. C18	15.05
Indianapolis J5	15.20
Lowellville,O. S3	15.05
Pawtucket,R.I. N8	15.40
Riverdale,Ill. A1	15.05
Sharon,Pa. S3	15.05
Worcester,Mass. A7	15.35
Youngstown J5	15.05

STRIP, Cold-Rolled High-Strength, Low-Alloy

Cleveland A7	10.45
Dearborn,Mich. D3	10.60
Dover,O. G6	10.45
Ecorse,Mich. G5	10.60
Farrell,Pa. S3	10.50
Ind.Harbor,Ind. Y1	10.65
Sharon,Pa. S3	10.50
Warren,O. R2	10.45
Weirton,W.Va. W6	10.50
Youngstown Y1	10.65

STRIP, Cold-Rolled Ingot Iron

Warren,O. R2	7.90

STRIP, C.R. Electrogalvanized

Cleveland A7	7.15*
Dover,O. G6	7.15*
Evanston,Ill. M22	7.25*
Riverdale,Ill. A1	7.25*
Warren,O. B9, T5	7.15*
Worcester,Mass. A7	7.70*
Youngstown J5	7.15*

*Plus galvanizing extras.

STRIP, Galvanized (Continuous)

Sharon,Pa. S3	7.275

TIGHT COOPERAGE HOOP

Atlanta A11	5.65
Riverdale,Ill. A1	5.50
Sharon,Pa. S3	5.35
Youngstown U5	5.35

STRIP, Cold-Finished Spring Steel (Annealed)

	0.26-0.40C	0.41-0.60C	0.61-0.80C	0.81-1.05C	1.06-1.35C
Baltimore T6	9.50	10.70	12.90	15.90	18.85
Boston T6	9.50	10.70	12.90	15.90	18.85
Bristol,Conn. W1		10.70	12.90	16.10	19.30
Carnegie,Pa. S18	8.95	10.40	12.60	15.60	
Cleveland A7	8.95	10.40	12.60	15.60	18.55
Dearborn,Mich. D3	9.05	10.50	12.70		
Detroit D2	9.05	10.50	12.70	15.70	
Dover,O. G6	8.95	10.40	12.60	15.60	18.55
Evanston,Ill. M22	8.95	10.40	12.60	15.60	
Fostoria,O. S1	10.05	10.40	12.60	15.60	
FranklinPark,Ill. T6	9.05	10.40	12.60	15.60	18.55
Harrison,N.J. C18			12.90	16.10	19.30
Indianapolis J5	9.10	10.55	12.60	15.60	18.55
LosAngeles C1	11.15	12.60	14.80	17.80	
LosAngeles J5	11.15	12.60	14.80		
NewBritain,Conn.(10) S15	8.95	10.40	12.60	15.60	18.55
NewCastle,Pa. B4, E5	8.95	10.40	12.60	15.60	
NewHaven,Conn. D2	9.40	10.70	12.90	15.90	
NewKensington,Pa. A6	8.95	10.40	12.60	15.60	
NewYork W3		10.70	12.90	16.10	19.30
Pawtucket,R.I. N8	9.50	10.70	12.90	15.90	18.85
Riverdale,Ill. A1	9.05	10.40	12.60	15.60	18.55
Rome,N.Y.(32) R6	8.95	10.40	12.60	15.60	18.55
Sharon,Pa. S3	8.95	10.40	12.60	15.60	18.55
Trenton,N.J. R5		10.70	12.90	16.10	19.30
Wallingford,Conn. W2	9.40	10.70	12.90	15.90	18.75
Warren,O. T5	8.95	10.40	12.60	15.60	18.55
Worcester,Mass. A7, T6	9.50	10.70	12.90	15.90	18.85
Youngstown J5	8.95	10.40	12.60	15.60	18.55

Spring Steel (Tempered)	Up to 0.80C	0.81-1.05C	1.06-1.35C
Bristol,Conn. W1	18.10	21.95	26.30
Buffalo W12	18.10		
Fostoria,O. S1	18.30	22.15	
FranklinPark,Ill. T6	18.45	22.30	26.65
Harrison,N.J. C18	18.10	21.95	26.30
New York W3	18.10	21.95	26.30
Palmer,Mass. W12	18.10		
Trenton,N.J. R5	18.10	21.95	26.30
Worcester,Mass. A7, T6	18.10	21.95	26.30
Youngstown J5	18.45	22.30	26.65

SILICON STEEL

H.R. SHEETS(22 Ga.; cut lengths)	Field	Armature	Electric	Motor	Dynamo
BeechBottom,W.Va. W10			11.80	12.90	13.95
Mansfield,O. E6	9.625	11.10	11.80	12.90	13.95
Newport,Ky. A2	9.625	11.10	11.80	12.90	13.95
Niles,O. M21, S3	9.625	11.10	11.80	12.90	
Vandergrift,Pa. U5		11.10	11.80	12.90	13.95
Warren,O. R2	9.625	11.10	11.80	12.90	
Zanesville,O. A10		11.10	11.80	12.90	13.95

C.R. COILS & CUT LENGTHS (22 Ga.) Fully Processed (Semiprocessed ½c lower)	Field	Armature	Electric	Motor	Dynamo
BeechBottom,W.Va. W10		11.35	12.05	13.15	14.20
Brackenridge,Pa. A4			12.05	13.15	14.20
GraniteCity,Ill. G4	9.825*	11.05*	11.75*	12.85*	
IndianaHarbor,Ind. I-2	9.625†	10.85*	11.55*	12.65*	
Mansfield,O. E6	9.625*	11.35	12.05	13.15	14.20
Vandergrift,Pa. U5	9.625*	11.35	12.05	13.15	14.20
Warren,O. R2	9.625*	11.35	12.05	13.15	14.20
Zanesville,O. A10		11.35†	12.05	13.15	14.20
					Stator
Vandergrift,Pa. U5					7.85

H.R. SHEETS (22 Ga., cut lengths)	T-72	T-65	T-58	T-52
BeechBottom,W.Va. W10	15.00	15.55	16.05	17.10
Vandergrift,Pa. U5	15.00	15.55	16.05	17.10
Zanesville,O. A10	15.00	15.55	16.05	17.10

C.R. COILS & CUT LENGTHS (22 Ga.)	Grain Oriented T-100	T-90	T-80	T-73	T-66	T-72
Brackenridge,Pa. A4		17.60	19.20	19.70	20.20	15.25††
Butler,Pa. A10			19.20	19.70	20.20	
Vandergrift,Pa. U5	16.60	17.60	19.20	19.70	20.20	15.25**
Warren,O. R2						15.25‡

*Semiprocessed. †Fully processed only. ‡Coils, annealed, semiprocessed ½c lower. **Cut lengths, ¾-cent lower. ††Coils only.

TIN MILL PRODUCTS

TIN PLATE, Electrolytic (Base Box)	0.25 lb	0.50 lb	0.75 lb
Aliquippa,Pa. J5	$8.75	$9.00	$9.40
Fairfield,Ala. T2	8.85	9.10	9.50
Fairless,Pa. U5	8.85	9.10	9.50
Fontana,Calif. K1	9.50	9.75	10.15
Gary,Ind. U5	8.75	9.00	9.40
GraniteCity,Ill. G4	8.85	9.10	9.50
IndianaHarbor,Ind. I-2, Y1	8.75	9.00	9.40
Irvin,Pa. U5	8.75	9.00	9.40
Niles,O. R2	8.75	9.00	9.40
Pittsburg,Calif. C11	9.50	9.75	10.15
SparrowsPoint,Md. B2	8.85	9.10	9.50
Weirton,W.Va. W6	8.75	9.00	9.40
Yorkville,O. W10	8.75	9.00	9.40

ELECTROTIN (22-27 Gage; Dollars per 100 lb)			
Aliquippa,Pa. J5	7.725	7.925	
Niles,O. R2	7.725	7.925	8.125

TIN PLATE, American	1.25 lb	1.50 lb
Aliquippa,Pa. J5	$10.05	$10.30
Fairfield,Ala. T2	10.15	10.40
Fairless,Pa. U5	10.15	10.40
Fontana,Calif. K1	10.80	11.05
Gary,Ind. U5	10.05	10.30
Ind.Harb. Y1	10.05	10.30
Pitts.,Calif. C11	10.80	11.05
Sp.Pt.,Md. B2	10.15	10.40
Weirton,W.Va. W6	10.05	10.30
Yorkville,O. W10	10.05	10.30

BLACK PLATE (Base Box)	
Aliquippa,Pa. J5	$7.85
Fairfield,Ala. T2	7.95
Fairless,Pa. U5	7.95
Fontana,Calif. K1	8.60
Gary,Ind. U5	7.85
GraniteCity,Ill. G4	7.95
Ind.Harbor,Ind. I-2, Y1	7.85
Irvin,Pa. U5	7.85
Niles,O. R2	7.85
Pittsburg,Calif. C11	8.60
SparrowsPoint,Md. B2	7.95
Weirton,W.Va. W6	7.85
Yorkville,O. W10	7.85

HOLLOWARE ENAMELING Black Plate (29 Gage)	
Aliquippa,Pa. J5	$7.50
Gary,Ind. U5	7.50
GraniteCity,Ill. G4	7.60
Ind.Harbor,Ind. Y1	7.50
Irvin,Pa. U5	7.50
Yorkville,O. W10	7.50

MANUFACTURING TERNES (Special Coated, Base Box)	
Gary,Ind. U5	$9.70
Irvin,Pa. U5	9.70

ROOFING SHORT TERNES (8 lb Coated, Base Box)	
Gary,Ind. U5	$11.25

WIRE

WIRE, Manufacturers Bright, Low Carbon	
AlabamaCity,Ala. R2	7.65
Aliquippa,Pa. J5	7.65
Alton,Ill. L1	7.85
Atlanta A11	7.65
Bartonville,Ill. K4	7.75
Buffalo W12	7.65
Chicago W13	7.65
Cleveland A7, C20	7.65
Crawfordsville,Ind. MS	7.75
Donora,Pa. A7	7.65
Duluth A7	7.65
Fairfield,Ala. T2	7.65
Fostoria,O.(24) S1	7.75
Houston S5	7.90
Jacksonville,Fla. MS	8.00
Johnstown,Pa. B2	7.65
Joliet,Ill. A7	7.65
KansasCity,Mo. S5	7.90
Kokomo,Ind. C16	7.75
LosAngeles B3	8.60
Minnequa,Colo. C10	7.90
Monessen,Pa. P7, P16	7.65
N.Tonawanda,N.Y. B11	7.65
Palmer,Mass. W12	7.95
Pittsburg,Calif. C11	8.60
Portsmouth,O. P12	7.65
Rankin,Pa. A7	7.65
S.Chicago,Ill. R2	7.65
S.SanFrancisco C10	8.60
SparrowsPoint,Md. B2	7.75
Sterling,Ill.(1) N15	7.65
Sterling,Ill. N15	7.75
Struthers,O. Y1	7.65
Waukegan,Ill. A7	7.65
Worcester,Mass. A7	7.95

WIRE, Gal'd., for ACSR	
Bartonville,Ill. K4	12.65
Buffalo W12	12.65
Cleveland A7	12.65
Donora,Pa. A7	12.65
Duluth A7	12.65
Johnstown,Pa. B2	12.65
Minnequa,Colo. C10	12.775
Monessen,Pa. P7, P16	12.65
Muncie,Ind. I-7	12.85
NewHaven,Conn. A7	12.95
Palmer,Mass. W12	12.95
Pittsburg,Calif. C11	13.45
Portsmouth,O. P12	12.65
Roebling,N.J. R5	12.95
SparrowsPt.,Md. B2	12.75
Struthers,O. Y1	12.65
Trenton,N.J. A7	12.95
Waukegan,Ill. A7	12.65
Worcester,Mass. A7	12.95

WIRE, Upholstery Spring	
Aliquippa,Pa. J5	9.30
Alton,Ill. L1	9.50
Buffalo W12	9.30
Cleveland A7	9.30
Donora,Pa. A7	9.30
Duluth A7	9.30
Johnstown,Pa. B2	9.30
KansasCity,Mo. S5	9.55
LosAngeles B3	10.25
Minnequa,Colo. C10	9.50
Monessen,Pa. P7, P16	9.30
NewHaven,Conn. A7	9.60
Palmer,Mass. W12	9.60
Pittsburg,Calif. C11	10.25
Portsmouth,O. P12	9.30
Roebling,N.J. R5	9.60
S.Chicago,Ill. R2	9.30
S.SanFrancisco C10	10.25
SparrowsPt.,Md. B2	9.40
Struthers,O. Y1	9.30
Trenton,N.J. A7	9.60
Waukegan,Ill. A7	9.30
Worcester A7, J4, T6	9.60

WIRE, Fine & Weaving(8" Coils)	
Alton,Ill. L1	15.80
Bartonville,Ill. K4	15.70
Buffalo W12	15.60
Chicago W13	15.60
Cleveland A7	15.60
Crawfordsville,Ind. MS	15.70
Fostoria,O. S1	15.60
Houston S5	15.85
Jacksonville,Fla. MS	15.95
Johnstown,Pa. B2	15.60
KansasCity,Mo. S5	15.85
Kokomo,Ind. C16	15.60
Minnequa,Colo. C10	15.85
Monessen,Pa. P16	15.60
Muncie,Ind. I-7	15.80
Palmer,Mass. W12	15.90
S.SanFrancisco C10	16.45
Waukegan,Ill. A7	15.60
Worcester,Mass. A7, T6	15.90

ROPE WIRE	(A)
Bartonville,Ill. K4	12.75
Buffalo W12	12.75
Fostoria,O. S1	12.75
Johnstown,Pa. B2	12.75
Monessen,Pa. P7	12.75
Muncie,Ind. I-7	12.95
Palmer,Mass. W12	13.05
Portsmouth,O. P12	12.75
Roebling,N.J. R5	13.05
SparrowsPt.,Md. B2	12.85
Struthers,O. Y1	12.75
Worcester,Mass. J4	13.05

(A) Plow and Mild Plow; add 0.25c for Improved Plow

WIRE, Tire Bead

Bartonville,Ill. K4	....16.55
Monessen,Pa. P16	....16.55
Roebling,N.J. R5	....17.05

WIRE, Cold-Rolled Flat

Anderson,Ind. G6	....11.65
Baltimore T6	....11.95
Boston T6	....11.95
Buffalo W12	....11.65
Chicago W13	....11.75
Cleveland A7	....11.65
Crawfordsville,Ind. M8	11.65
Dover,O. G6	....11.65
Fostoria,O. S1	....11.65
FranklinPark,Ill. T6	..11.75
Kokomo,Ind. C16	....11.65
Massillon,O. R8	....11.65
Milwaukee C2	....11.85
Monessen,Pa. P7, P16	..11.65
Palmer,Mass. W12	....11.95
Pawtucket,R.I. N8	....11.95
Philadephia, P24	....11.95
Riverdale,Ill. A1	....11.75
Rome,N.Y. R6	....11.65
Sharon, Pa. S3	....11.65
Trenton,N.J. R5	....11.95
Warren,O. B9	....11.65
Worcester,Mass. A7, T6	11.95

NAILS, Stock

	Col.
AlabamaCity,Ala. R2	..175
Aliquippa,Pa. J5	175
Atlanta A11	175
Bartonville,Ill. K4	175
Chicago W13	179
Cleveland A9	179
Crawfordsville,Ind. M8	..175
Donora,Pa. A7	175
Duluth A7	175
Fairfield,Ala. T2	175
Houston S5	178
Jacksonville,Fla. M8	*175*
Johnstown, Pa. B2	173
Joliet,Ill. A7	173
KansasCity,Mo. S5	178
Kokomo,Ind. C16	175
Minnequa,Colo. C10	178
Monessen,Pa. P7	173
Pittsburg,Calif. C11	192
Rankin,Pa. A7	173
S.Chicago,Ill. R2	173
SparrowsPt.,Md. B2	175
Sterling,Ill.(7) N15	175
Worcester,Mass. A7	179

(To Wholesalers; per cwt)

Galveston,Tex. D7	....$9.10

NAILS, Cut (100 lb keg)
To Dealers (33)

Conshohocken,Pa. A3	..$9.80
Wheeling,W.Va. W10	..9.80

POLISHED STAPLES

	Col.
AlabamaCity,Ala. R2	..175
Aliquippa,Pa. J5	175
Atlanta A11	177
Bartonville,Ill. K4	177
Crawfordsville,Ind. M8	..177
Donora,Pa. A7	175
Duluth A7	175
Fairfield,Ala. T2	175
Houston S5	180
Jacksonville,Fla. M8	*177*
Johnstown,Pa. B2	175
Joliet,Ill. A7	175
KansasCity,Mo. S5	180
Kokomo,Ind. C16	177
Minnequa,Colo. C10	180
Pittsburgh,Calif. C11	194
Rankin,Pa. A7	175
S.Chicago,Ill. R2	175
SparrowsPt.,Md. B2	177
Sterling,Ill.(7) N15	175
Worcester,Mass. A7	181

TIE WIRE, Automatic Baler
(14½ Ga.)(Per 97 lb Net Box)

	Coil No. 3150
AlabamaCity,Ala. R2	$10.26
Atlanta A11	....10.36
Bartonville,Ill. K4	....10.36
Buffalo W12	....10.26
Chicago W13	....10.26
Crawfordsville,Ind. M8	10.36
Donora,Pa. A7	....10.26
Duluth A7	....10.26
Fairfield,Ala. T2	....10.26
Houston S5	....10.51
Jacksonville,Fla. M8	*10.36*
Johnstown,Pa. B2	....10.26
Joliet,Ill. A7	....10.26
KansasCity,Mo. S5	....10.51
Kokomo,Ind. C16	....10.36
LosAngeles B3	....11.05
Minnequa,Colo. C10	....10.51
Pittsburg,Calif. C11	..11.04
S.Chicago,Ill. R2	....10.26
S.SanFrancisco C10	....11.04
SparrowsPt.,Md. B2	....10.36
Sterling,Ill. (37) N15	..10.36

	Coil No. 6500 Stand.
AlabamaCity,Ala. R2	$10.60
Atlanta A11	....10.70
Bartonville,Ill. K4	....10.70
Buffalo W12	....10.60
Chicago W13	....10.60
Crawfordsville,Ind. M8	10.70
Donora,Pa. A7	....10.60
Duluth A7	....10.60
Fairfield,Ala. T2	....10.60
Houston S5	....10.85
Jacksonville,Fla. M8	*10.70*
Johnstown,Pa. B2	....10.60
Joliet,Ill. A7	....10.60
KansasCity,Mo. S5	....10.85
Kokomo,Ind. C16	....10.70
LosAngeles B3	....11.40
Minnequa,Colo. C10	..10.85
Pittsburg,Calif. C11	..11.40
S.Chicago,Ill. R2	....10.60
S.SanFrancisco C10	..11.40
SparrowsPt.,Md. B2	..10.70
Sterling,Ill.(37) N15	..10.70

	Coil No. 6500 Interim
AlabamaCity,Ala. R2	$10.65
Atlanta A11	....10.75
Bartonville,Ill. K4	....10.70
Buffalo W12	....10.65
Chicago W13	....10.65
Crawfordsville,Ind. M8	10.75
Donora,Pa. A7	....10.65
Duluth A7	....10.65
Fairfield,Ala. T2	....10.65
Houston S5	....10.90
Jacksonville,Fla. M8	*10.75*
Johnstown,Pa. B2	....10.65
Joliet,Ill. A7	....10.65
KansasCity,Mo. S5	....10.90
Kokomo,Ind. C16	....10.75
LosAngeles B3	....11.45
Minnequa,Colo. C10	..10.90
Pittsburg,Calif. C11	..11.45
S.Chicago,Ill. R2	....10.65
S.SanFrancisco C10	..11.45
SparrowsPt.,Md. B2	..10.75
Sterling,Ill.(37) N15	..10.75

BALE TIES, Single Loop

	Col.
AlabamaCity,Ala. R2	..212
Atlanta A11	214
Bartonville,Ill. K4	214
Crawfordsville,Ind. M8	..214
Donora,Pa. A7	212
Duluth A7	212
Fairfield,Ala. T2	212
Houston S5	217
Jacksonville,Fla. M8	*214*
Joliet,Ill. A7	212
KansasCity,Mo. S5	217
Kokomo,Ind. C16	214
Minnequa,Colo. C10	217
Pittsburg,Calif. C11	236
S.SanFrancisco C10	236
SparrowsPt.,Md. B2	214
Sterling,Ill.(7) N15	214

FENCE POSTS

Birmingham C15	172
ChicagoHts.,Ill. C2, I-2	172
Duluth A7	172
Franklin,Pa. F5	172
Huntington,W.Va. C15	172
Johnstown,Pa. B2	172
Marion,O. P11	172
Minnequa,Colo. C10	177
Sterling,Ill.(1) N15	172
Tonawanda,N.Y. B12	..174

WIRE, Barbed

	Col.
AlabamaCity,Ala. R2	190†*
Aliquippa,Pa. J5	....190§
Atlanta A11	....198*
Bartonville,Ill. K4	198
Crawfordsville,Ind. M8	198
Donora,Pa. A7	....193†
Duluth A7	....193†
Fairfield,Ala. T2	....193†
Houston S5	....198**
Jacksonville,Fla. M8	*198*
Johnstown,Pa. B2	....196§
Joliet,Ill. A7	....193†
KansasCity,Mo. S5	....198**
Kokomo,Ind. C16	....195†
Minnequa,Colo. C10	..198**
Monessen,Pa. P7	....196§
Pittsburg,Calif. C11	..213†
Rankin,Pa. A7	....193†
S.Chicago,Ill. R2	....193**
S.SanFrancisco C10	..213**
SparrowsPoint,Md. B2	..198§
Sterling,Ill.(7) N15	..198††

WOVEN FENCE, 9-15 Ga.

	Col.
Ala.City,Ala. R2	....187**
Aliq'ppa,Pa.9-14½ga.J5	190§
Atlanta A11	....192*
Bartonville,Ill. K4	192
Crawfordsville,Ind. M8	..192
Donora,Pa. A7	....187†
Duluth A7	....187†
Fairfield,Ala. T2	....187†
Houston S5	....192**
Jacksonville,Fla. M8	*192*
Johnstown,Pa.(43) B2	..190§
Joliet,Ill. A7	....187†
KansasCity,Mo. S5	....192**
Kokomo,Ind. C16	....189†
Minnequa,Colo. C10	..192**
Pittsburg,Calif. C11	..210†
Rankin,Pa. A7	....187†
S.Chicago,Ill. R2	....187**
Sterling,Ill.(7) N15	..192††

	An'ld Stone	Galv. Stone
WIRE (16 gage)		
Ala.City,Ala.R2	17.15	18.70**
Aliq'ppa,Pa. J5	..17.15	18.95
Bartonville,Ill. K4	..17.25	19.05
Cleveland A7	...17.15	....
Crawf'dsville,Ind. M8	17.25	19.05
Fostoria,O. S1	..17.65	19.20†
Houston S5	....17.40	18.95**
Jacksonville,Fla. M8	*17.25*	*19.05*
Johnstown,Pa. B2	..17.15	18.95§
Kan.City,Mo. S5	17.40	....
Kokomo,Ind. C16	..17.25	18.80†
Minnequa,Colo. C10	17.40	18.95**
Pitts.,Calif. C11	17.50	19.05†
SparrowsPt.,Md. B2	17.25	19.05§
Sterling,Ill.(37) N15	17.25	19.05††
Waukegan,Ill. A7	..17.15	18.70†
Worcester,Mass. A7	..17.45	....

WIRE, Merchant Quality
(6 to 8 gage) An'ld Galv.

Ala.City,Ala. R2	8.65 9.20**
Aliquippa,Pa. J5	....8.65 9.325§
Atlanta(48) A11	8.75 9.425*
Bartonville(48) K4	8.75 9.425
Buffalo W12	....8.65 9.20†
Cleveland A7	....8.65 ....
Crawfordsville,Ind. M8	8.75 9.425
Donora,Pa. A7	....8.65 9.20†
Duluth A7	....8.65 9.20†
Fairfield T2	....8.65 9.20†
Houston(48) S5	....8.90 9.45**
Jacksonville,Fla. M8 8.75 9.425	
Johnstown B2(48)	8.65 9.325§
Joliet,Ill. A7	....8.65 9.20†
Kans.City(48) S5	8.90 9.45**
Kokomo C16	....8.75 9.30†
LosAngeles B3	9.60 10.275§
Minnequa C10	....8.90 9.45**
Monessen P7(48)	8.65 9.325§
Palmer,Mass. W12	8.95 9.50†
Pitts.Calif. C11	..9.60 10.15†
Rankin,Pa. A7	....8.65 9.20†
S.Chicago R2	....8.65 9.20**
S.SanFran. C10	..9.60 10.15**
SparrowsPt.B2(48)	8.75 9.425§
Sterling(48) N15	8.90 9.575††
Sterling(1) (48)	8.80 9.475††
Struthers,O. Y1	....8.65 9.30†
Worcester,Mass.A7	8.95 9.50†

Based on zinc price of: *13.50. †5c. §10c. ††Less than 10c. **10.50c. **Subject to zinc equalization extras.

FASTENERS

(Base discounts, full container quantity, per cent off list, f.o.b. mill)

BOLTS

Carriage, Machine Bolts
Full Size Body (cut thread)
½ in. and smaller:

6 in. and shorter	49.0
Longer than 6 in.	39.0
⅝ in. thru 1 in.:	
6 in. and shorter	39.0
Longer than 6 in.	35.0
1⅛ in. and larger:	
All lengths	35.0
Undersized Body (rolled thread)	
½ in. and smaller:	
6 in. and shorter	49.0

Carriage, Machine, Lag Bolts
Hot Galvanized:
½ in. and smaller:

6 in. and shorter	29.0
Longer than 6 in.	15.0
⅝ in. and larger:	
All lengths	12.0

Lag Bolts (all diam.)

6 in. and shorter	49.0
Longer than 6 in.	39.0

Plow and Tap Bolts

½ in. and smaller by 6 in. and shorter	49.0
Larger than ½ in. or longer than 6 in.	39.0

Blank Bolts 39.0
Step, Elevator, Tire Bolts 49.0
Stove Bolts, Slotted:

⅛ to ¼ in. incl.:	
3 in. and shorter	55.0
5/16 to ½ in., inclusive	55.0

NUTS

Reg. & Heavy Square Nuts:

All sizes	55.5

Square Nuts, Reg. & Heavy, Hot Galvanized:

All sizes	41.0

Hex Nuts, Reg. & Heavy, Hot Pressed:

¾ in. and smaller	60.5
⅞ in. to 1 in., incl.	55.5
1⅛ in. to 1½ in., incl.	58.5
1⅝ in. and larger	53.5

Hex Nuts, Reg. & Heavy, Cold Punched:

⅜ in. and smaller	60.5
⅞ in. to 1½ in., incl.	55.5
1⅝ in. and larger	53.5

Hex Nuts, All Types, Hot Galvanized:

¾ in. and smaller	46.5
⅞ in. to 1 in., incl.	41.5
1⅛ in. to 1½ in., incl.	46.5

Hex Nuts, Semifinished, Heavy (Incl. Slotted):

¾ in. and smaller	60.5
⅞ in. to 1½ in., incl.	55.5
1⅝ in. and larger	53.5

Hex Nuts, Finished (Incl. Slotted and Castellated):

1 in. and smaller	63.0
1⅛ in. to 1½ in., incl.	59.0
1⅝ in. and larger	53.5

Semifinished Hex Nuts, Reg. (Incl. Slotted):

⅝ in. and smaller	60.5
¾ in. to 1 in., incl.	63.0
1⅛ to 1½ in., incl.	59.0
1⅝ in. and larger	53.5

CAP AND SETSCREWS
(Base discounts, packages, per cent off list, f.o.b. mill)

Hex Head Capscrews, Coarse or Fine Thread, Bright:
6 in. and shorter:

¾ in. and smaller	40.0
⅞ in. and 1 in. diam.	22.0
Longer than 6 in.:	
¾ in. and smaller	8.0
⅞ in. and 1 in. diam.	+ 6.0

High Carbon, Heat Treated:
6 in. and shorter:

⅝ in. and smaller	+ 26.0
¾ in. and 1 in. diam.	3.0
Longer than 6 in.:	
⅝ in. and smaller	+ 13.0
¾ in. and 1 in. diam.	+ 32.0

Flat Head Capscrews:

¾ in. and smaller	+ 76.0

Setscrews, Square Head, Cup Point, Coarse Thread:
Through 1 in. diam.:

6 in. and shorter	Net
Longer than 6 in.	+ 23

RIVETS

F.o.b. Cleveland and/or freight equalized with Pittsburgh, f.o.b. Chicago and/or freight equalized with Birmingham except where equalization is too great.
Structural ½ in., larger 12.25
⅞ in. under: List less 19%

BOILER TUBES

Net base c.l. prices, dollars per 100 ft. mill; minimum wall thickness, cut lengths 10 to 24 ft. inclusive

O.D. In.	B.W. Gage	Seamless H.R.	Seamless C.D.	Elec. Weld H.R.
1	13	....	25.98	23.54
1¼	13	....	30.78	23.36
1½	13	29.03	34.01	25.83
1¾	13	34.29	40.18	30.51
2	13	38.44	45.05	34.20
2¼	13	43.29	50.75	38.52
2¼	12	46.99	55.06	41.81
2½	12	51.76	60.65	46.05
2¾	12	56.04	65.67	49.88
3	12	59.76	70.03	53.19

RAILWAY MATERIALS

	Standard No. 1	Standard No. 2	Tee Rails All No. 2	Tee Rails 60-lb Under
Rails				
Bessemer,Pa. U5	5.525	5.425	....	6.50
Ensley,Ala. T2	5.525	5.425	....	6.50
Fairfield,Ala. T2	....	....	....	6.50
Gary,Ind. U5	5.525 *	5.425	....	....
Huntington,W.Va. C15	....	....	....	6.50
IndianaHarbor,Ind. I-2	5.525	5.425	5.475	....
Johnstown,Pa. B2	....	....	....(16)†	6.50
Lackawanna,N.Y. B2	5.525	5.425	....	6.50
Minnequa,Colo. C10	5.525	5.425	....	7.00
Steelton,Pa. B2	5.525	5.425	....	....
Williamsport,Pa. S19	....	....	....	6.50
TIE PLATES				
Fairfield,Ala. T2	....	6.60		
Gary,Ind. U5	....	6.60		
Ind.Harbor,Ind. I-2	....	6.60		
Lackawanna,N.Y. B2	....	6.60		
Minnequa,Colo. C10	....	6.60		
Seattle B3	....	6.75		
Steelton,Pa. B2	....	6.60		
Torrance,Calif. C11	....	6.75		
JOINT BARS				
Bessemer,Pa. U5	....	6.975		
Fairfield,Ala. T2	....	6.975		
Ind.Harbor,Ind. I-2	....	6.975		
Joliet,Ill. U5	....	6.975		
Lackawanna,N.Y. B2	....	6.975		
Minnequa,Colo. C10	....	6.975		
Steelton,Pa. B2	....	6.975		
AXLES				
Ind.Harbor,Ind. S13	....	8.775		
Johnstown,Pa. B2	....	8.775		

TRACK BOLTS, Untreated	
Cleveland R2	....14.75
KansasCity,Mo. S5	....14.75
Lebanon,Pa. B2	....14.75
Minnequa,Colo. C10	....14.75
Pittsburgh P14	....14.75
Seattle B3	....15.25
SCREW SPIKES	
Lebanon,Pa. B2	....14.50
STANDARD TRACK SPIKES	
Fairfield,Ala. T2	....9.75
Ind.Harbor,Ind. I-2, Y1	9.75
KansasCity,Mo. S5	....9.75
Lebanon,Pa. B2	....9.75
Minnequa,Colo. C10	....9.75
Pittsburgh J5	....9.75
Seattle B3	....10.25
S.Chicago,Ill. R2	....9.75
Struthers,O. Y1	....9.75
Youngstown R2	....9.75

Footnotes

(1) Chicago base.
(2) Angles, flats, bands.
(3) Merchant.
(4) Reinforcing.
(5) 1⅝ to under 1 7/16 in.; 1 7/16 to under 1 15/16 in., 6.70c; 1 15/16 to 8 in., inclusive, 7.05c.
(6) Chicago or Birm. base.
(7) Chicago base 2 cols. lower.
(8) 16 Ga. and heavier.
(9) Merchant quality; add 0.35c for special quality.
(10) Pittsburgh base.
(11) Cleveland & Pitts. base.
(12) Worcester, Mass. base.
(13) Add 0.25c for 17 Ga. & heavier.
(14) Gage 0.143 to 0.249 in.; for gage 0.142 and lighter, 5.80c.
(15) 8½" and thinner.
(16) 40 lb and under.
(17) Flats only; 0.25 in. & heavier.
(18) To dealers.
(19) Chicago & Pitts. base.
(21) New Haven, Conn. base.
(22) Del. San Francisco Bay area.
(23) Special quality.
(24) Deduct 0.15c, finer than 15 Ga.
(25) Bar mill bands.
(27) Bar mill sizes.
(28) Bonderized.
(29) Youngstown base.
(30) Sheared; for universal mill add 0.45c.
(31) Widths over ⅝ in.; 7.60c, for widths ⅝ in. and under by 0.125 in. and thinner.
(32) Buffalo base.
(33) To jobbers, deduct 20c.
(34) 6.60c for cut lengths.
(35) 72" and narrower.
(36) 54" and narrower.
(37) Chicago base, 10 points lower.
(38) 14 Ga. & lighter; 48" & narrower.
(39) 48" and narrower.
(40) Lighter than 0.035"; 0.075" and heavier, 0.25c higher.
(41) 9.10c for cut lengths.
(42) Mill lengths, f.o.b. mill; deld. in mill zone or within switching limits, 5.685c.
(43) 9-14½ Ga.
(44) To fabricators.
(48) 6.7 Ga.
(49) 3⅜ in. and smaller rounds; 9.50c, over 3½ in. and other shapes.

SEAMLESS STANDARD PIPE, Threaded and Coupled

Carload discounts from list, %

Size—Inches	2		2½		3		3½		4		5		6	
List Per Ft	37c		58.5c		76.5c		92c		$1.09		$1.48		$1.92	
Pounds Per Ft	3.68		5.82		7.62		9.20		10.89		14.81		19.18	
	Blk	Galv*	Blk	Galv*	Blk	Galv*	Blk	Galv*	Blk	Galv*	Blk	Galv*	Blk	Galv*
Aliquippa, Pa. J5	+9.25	+24.25	+2.75	+19.5	+0.25	+17	1.25	+15.5	1.25	+15.5	1	+15.75	3.5	+13.25
Ambridge, Pa. N2	+9.25	....	+2.75	....	+0.25	....	1.25	....	1.25	....	1	....	3.5	....
Lorain, O. N3	+9.25	+24.25	+2.75	+19.5	+0.25	+17	1.25	+15.5	1.25	+15.5	1	+15.75	3.5	+13.25
Youngstown Y1	+9.25	+24.25	+2.75	+19.5	+0.25	+17	1.25	+15.5	1.25	+15.5	1	+15.75	3.5	+13.25

ELECTRIC STANDARD PIPE, Threaded and Coupled

Carload discounts from list, %

Youngstown R2	+9.25	+24.25	+2.75	+19.5	+0.25	+17	1.25	+15.5	1.25	+15.5	1	+15.75	3.5	+13.25

BUTTWELD STANDARD PIPE, Threaded and Coupled

Carload discounts from list, %

Size—Inches	⅛		¼		⅜		½		¾		1		1¼	
List Per Ft	5.5c		6c		6c		8.5c		11.5c		17c		23c	
Pounds Per Ft	0.24		0.42		0.57		0.85		1.13		1.68		2.28	
	Blk	Galv*	Blk	Galv*	Blk	Galv*	Blk	Galv*	Blk	Galv*	Blk	Galv*	Blk	Galv*
Aliquippa, Pa. J5	....	....	....	....	....	....	5.25	+10	8.25	+6	11.75	+1.5	14.25	+0.75
Alton, Ill. L1	....	....	....	....	....	....	3.25	+12	6.25	+8	9.75	+3.5	12.25	+2.75
Benwood, W. Va. W10	4.5	+22	+7.5	+31	+18	+39.5	5.25	+10	8.25	+6	11.75	+1.5	14.25	+0.75
Butler, Pa. F6	5.5	+21	+6.5	+30	+17	+38.5	....	....	....	....	....	....	....	....
Etna, Pa. N2	....	....	....	....	....	....	5.25	+10	8.25	+6	11.75	+1.5	14.25	+0.75
Fairless, Pa. N3	....	....	....	....	....	....	3.25	+12	6.25	+8	9.75	+3.5	12.25	+2.75
Fontana, Calif. K1	....	....	....	....	....	....	+8.25	+23.5	+5.25	+19.5	+1.75	+15	0.75	+14.25
Indiana Harbor, Ind. Y1	....	....	....	....	....	....	4.25	+11	7.25	+7	10.75	+2.5	13.25	+3.25
Lorain, O. N3	....	....	....	....	....	....	5.25	+10	8.25	+6	11.75	+1.5	14.25	+0.75
Sharon, Pa. S4	5.5	+21	+6.5	+30	+17	+38.5	....	....	....	....	....	....	....	....
Sharon, Pa. M6	....	....	....	....	....	....	5.25	+10	8.25	+6	11.75	+1.5	14.25	+0.75
Sparrows Pt., Md. B2	3.5	+23	+8.5	+32	+19	+40.5	3.25	+12	6.25	+8	9.75	+3.5	12.25	+2.75
Wheatland, Pa. W9	5.5	+21	+6	+30	+17	+38.5	5.25	+10	8.25	+6	11.75	+1.5	14.25	+0.75
Youngstown R2, Y1	....	....	....	....	....	....	5.25	+10	8.25	+6	11.75	+1.5	14.25	+0.75

Size—Inches	1½		2		2½		3		3½		4	
List Per Ft	27.5c		37c		58.5c		76.5c		92c		$1.09	
Pounds Per Ft	2.73		3.68		5.82		7.62		9.20		10.89	
	Blk	Galv*	Blk	Galv*	Blk	Galv*	Blk	Galv*	Blk	Galv*	Blk	Galv*
Aliquippa, Pa. J5	14.75	0.25	15.25	0.75	16.75	0.5	16.75	0.5	....	....	....	....
Alton, Ill. L1	12.75	+1.75	13.25	+1.25	14.75	+1.5	14.75	+1.5	....	....	....	....
Benwood, W. Va. W10	14.75	0.25	15.25	0.75	16.75	0.5	16.75	0.5	6.25	+10.5	6.25	+10.5
Etna, Pa. N2	14.75	0.25	15.25	0.75	16.75	0.5	16.75	0.5	6.25	+10.5	6.25	+10.5
Fairless, Pa. N3	12.75	+1.75	13.25	+1.25	14.75	+1.5	14.75	+1.5	4.25	+12.5	4.25	+12.5
Fontana, Calif. K1	1.25	+13.25	1.75	+12.75	3.25	+13	3.25	+13	+7.25	+24	+7.25	+24
Indiana Harbor, Ind. Y1	13.75	+0.75	14.25	+0.25	15.75	+0.5	15.25	+0.5	5.25	+11.5	5.25	+11.5
Lorain, O. N3	14.75	0.25	15.25	0.75	16.75	0.5	16.75	0.5	....	....	....	....
Sharon, Pa. M6	14.75	0.25	15.25	0.75	16.75	0.5	16.75	0.5	....	....	....	....
Sparrows Pt., Md. B2	12.75	+1.75	13.25	+1.25	14.75	+1.5	14.75	+1.5	4.25	+12.5	4.25	+12.5
Wheatland, Pa. W9	14.75	0.25	15.25	0.75	16.75	0.5	16.75	0.5	6.25	+10.5	6.25	+10.5
Youngstown R2, Y1	14.75	0.25	15.25	0.75	16.75	0.5	16.75	0.5	6.25	+10.5	6.25	+10.5

*Galvanized pipe discounts based on current price of zinc (10.00c, East St. Louis).

Stainless Steel

Representative prices, cents per pound; subject to current lists of extras

AISI Type	—Rerolling— Ingot	Slabs	Forging Billets	H.R. Strip	H.R. Rods; C.F. Wire	Bars; Structural Shapes	Plates	Sheets	C.R. Strip; Flat Wire
201	22.00	27.00	....	36.00	40.00	42.00	44.25	48.50	45.00
202	23.75	30.25	36.50	39.00	40.75	43.00	45.00	49.25	49.25
301	23.25	28.00	37.25	37.25	42.00	44.25	46.25	51.25	47.50
302	25.25	31.50	38.00	40.50	42.75	45.00	47.25	52.00	52.00
302B	25.50	32.75	40.75	45.75	45.00	47.25	49.50	57.00	57.00
303	....	32.00	41.00	46.00	45.50	48.00	50.00	56.75	56.75
304	27.00	33.25	40.50	44.25	45.25	47.75	50.75	55.00	55.00
304L	....	....	48.25	51.50	53.00	55.50	58.50	63.25	62.75
305	28.50	36.75	42.50	47.50	45.25	47.75	51.25	58.75	58.75
308	30.75	38.25	47.25	50.25	52.75	55.75	60.25	63.00	63.00
309	39.75	49.50	57.75	64.50	63.75	67.00	71.00	80.50	80.50
310	49.75	61.50	78.00	84.25	86.50	91.00	92.75	96.75	96.75
314	....	....	77.50	....	86.50	91.00	92.75	99.00	104.25
316	39.75	49.50	62.25	69.25	69.25	73.00	76.75	80.75	80.75
316L	....	55.50	70.00	76.50	77.00	80.75	84.50	89.25	88.50
317	48.00	60.00	76.75	88.25	86.25	90.75	93.50	101.00	101.00
321	32.25	40.00	47.00	53.50	52.50	55.50	59.75	65.50	65.50
330	....	....	106.75	....	95.25	106.75	105.50	108.00	149.25
18-8 CbTa	37.00	46.50	55.75	63.50	61.50	64.75	69.75	79.25	79.25
403	....	....	32.00	....	35.75	37.75	40.25	48.25	48.25
405	19.50	25.50	29.75	36.00	33.50	35.25	37.50	46.75	46.75
410	16.75	21.50	28.25	31.00	32.00	33.75	35.00	40.25	40.25
416	....	....	28.75	....	32.50	34.25	36.00	48.25	48.25
420	26.00	33.50	34.25	41.75	39.25	41.25	45.25	52.00	62.00
430	17.00	21.75	28.75	32.00	32.50	34.25	36.00	40.75	40.75
430F	....	....	29.50	....	33.00	34.75	36.75	51.75	42.00
431	....	28.75	37.75	....	42.00	44.25	46.00	56.00	56.00
446	....	....	39.25	59.00	44.25	46.50	47.75	70.00	70.00

Stainless Steel Producers Are: Allegheny Ludlum Steel Corp.; American Steel & Wire Div., U. S. Steel Corp.; Anchor Drawn Steel Co., division of Vanadium-Alloys Steel Co.; Armco Steel Corp.; Babcock & Wilcox Co.; Bethlehem Steel Co.; J. Bishop & Co.; A. M. Byers Co.; G. O. Carlson Inc.; Carpenter Steel Co.; Carpenter Steel Co. of New England; Charter Wire Products; Crucible Steel Co. of America; Damascus Tube Co.; Dearborn Div., Sharon Steel Corp.; Wilbur B. Driver Co.; Driver-Harris Co.; Eastern Stainless Steel Corp.; Firth Sterling Inc.; Fort Wayne Metals Inc.; Green River Steel Corp., subsidiary of Jessop Steel Co.; Indiana Steel & Wire Co.; Ingersoll Steel Div., Borg-Warner Corp.; Ellwood Ivins Steel Tube Works Inc.; Jessop Steel Co.; Johnson Steel & Wire Co. Inc.; Stainless Steel Div., Jones & Laughlin Steel Corp.; Joslyn Stainless Steels, division of Joslyn Mfg. & Supply Co.; Latrobe Steel Co.; Lukens Steel Co.; Maryland Fine & Specialty Wire Co. Inc.; McLouth Steel Corp.; Metal Forming Corp.; Midvale-Heppenstall Co.; National Standard Co.; National Tube Div., U. S. Steel Corp.; Pacific Tube Co.; Page Steel & Wire Div., American Chain & Cable Co. Inc.; Pittsburgh Rolling Mills Inc.; Republic Steel Corp.; Riverside-Alloy Metal Div., H. K. Porter Company Inc.; Rodney Metals Inc.; Sawhill Tubular Products Inc.; Sharon Steel Corp.; Simonds Saw & Steel Co.; Specialty Wire Co. Inc.; Standard Tube Co.; Superior Steel Div., Copperweld Steel Co.; Superior Tube Co.; Swepco Tube Corp.; Techalloy Co. Inc.; Timken Roller Bearing Co.; Trent Tube Co., subsidiary of Crucible Steel Co. of America; Tube Methods Inc.; Ulbrich Stainless Steels Inc.; U. S. Steel Corp.; Universal-Cyclops Steel Corp.; Vanadium-Alloys Steel Co.; Wall Tube & Metal Products Co.; Wallingford Steel Co., subsidiary of Allegheny Ludlum Steel Corp.; Washington Steel Corp.

Clad Steel

	Plates—Carbon Base 5%	10%	15%	20%	Sheets Carbon Base 20%
Stainless	....	....	....	....	37.50
302	....	....	....	....	....
304	34.70	37.95	42.25	46.70	39.75
304L	36.90	40.55	45.10	49.85	....
316	40.35	44.50	49.50	54.50	58.25
316L	45.05	49.35	54.70	60.10	....
316 Cb	47.30	53.80	61.45	69.10	....
321	36.60	40.05	44.60	49.30	47.25
347	38.25	42.40	47.55	52.80	57.00
405	28.60	29.85	33.35	36.85	....
410	28.15	29.55	33.10	36.70	....
430	28.30	29.80	33.55	37.25	....
Inconel	48.00	59.55	70.15	80.85	....
Nickel	41.65	51.95	62.30	72.70	....
Nickel, Low Carbon	41.95	52.60	63.30	74.15	....
Monel	43.35	53.55	63.80	74.05	....
Copper*	....	....	....	....	46.00

	Strip, Carbon Base —Cold Rolled— 10%	Both Sides
Copper*	33.10	38.75

*Deoxidized. Production points: Stainless-clad sheets, New Castle, Ind. I-4; stainless-clad plates, Claymont, Del. C22, Coatesville, Pa. L7, New Castle, Ind. I-4, and Washington, Pa. J3; nickel, inconel, monel-clad plates, Coatesville L7; copper-clad strip, Carnegie, Pa. S18.

Tool Steel

Grade	$ per lb	Grade	$ per lb
Regular Carbon	0.305	Cr-Hot Work	0.475
Extra Carbon	0.360	W-Cr Hot Work	0.500
Special Carbon	0.475	V-Cr Hot Work	0.520
Oil Hardening	0.475	Hi-Carbon-Cr	0.925

Grade by Analysis (%)

W	Cr	V	Co	Mo	$ per lb
20.25	4.25	1.6	12.25	....	4.285
18.25	4.25	1	4.75	....	2.500
18	4	2	9	....	2.870
18	4	2	....	....	1.960
18	4	1	....	....	1.795
9	3.5	....	....	....	1.395
13.5	4	3	....	....	2.060
13.75	3.75	2	5	....	2.440
6.4	4.5	1.9	....	5	1.300
6	4	3	....	6	1.545
1.5	4	1	....	8.5	1.155

Tool steel producers include: A4, A8, B2, B8, C4, C9, C13, C18, F2, J3, L3, M14, S8, U4, V2, and V3.

Pig Iron

F.o.b. furnace prices in dollars per gross ton, as reported to STEEL. Minimum delivered prices are approximate and do not include 3% federal transportation tax.

	Basic	No. 2 Foundry	Malle-able	Besse-mer
Birmingham District				
Birmingham R2	62.00	62.50‡	....	....
Birmingham U6	....	62.50‡	66.50	....
Woodward,Ala. W15	62.00**	62.50‡	66.50	....
Cincinnati, deld.	....	70.20	....	....
Buffalo District				
Buffalo H1, R2	66.00	66.50	67.00	67.50
N.Tonawanda,N.Y. T9	....	66.50	67.00	67.50
Tonawanda,N.Y. W12	66.00	66.50	67.00	67.50
Boston, deld.	77.29	77.79	78.29	....
Rochester,N.Y., deld.	69.02	69.52	70.02	....
Syracuse,N.Y., deld.	70.12	70.62	71.12	....
Chicago District				
Chicago I-3	66.00	66.50	66.50	67.00
S.Chicago,Ill. R2	66.00	66.50	66.50	67.00
S.Chicago,Ill. W14	66.00	....	66.50	67.00
Milwaukee, deld.	69.02	69.52	69.52	70.02
Muskegon,Mich., deld.	....	74.52	74.52	....
Cleveland District				
Cleveland R2, A7	66.00	66.50	66.50	67.00
Akron,Ohio, deld.	69.12	69.62	69.62	70.12
Mid-Atlantic District				
Birdsboro,Pa. B10	68.00	68.50	69.00	69.50
Chester,Pa. P4	68.00	68.50	69.00	....
Swedeland,Pa. A3	68.00	68.50	69.00	69.50
NewYork, deld.	....	75.50	76.00	....
Newark,N.J., deld.	72.69	73.19	73.69	74.19
Philadelphia, deld.	70.41	70.91	71.41	71.99
Troy,N.Y. R2	68.00	68.50	69.00	69.50
Pittsburgh District				
NevilleIsland,Pa. P6	66.00	66.50	66.50	67.00
Pittsburgh (N&S sides), Aliquippa, deld.	....	67.95	67.95	68.48
McKeesRocks,Pa., deld.	....	67.60	67.60	68.13
Lawrenceville,Homestead, Wilmerding,Monaca,Pa., deld.	....	68.26	68.26	68.79
Verona,Trafford,Pa., deld.	68.29	68.82	68.82	69.35
Brackenridge,Pa., deld.	68.60	69.10	69.10	69.63
Midland,Pa. C18	66.00	....	....	....
Youngstown District				
Hubbard,Ohio Y1	....	....	66.50	....
Sharpsville,Pa. S6	66.00	....	66.50	67.00
Youngstown Y1	....	....	66.50	67.00
Mansfield,Ohio, deld.	70.90	....	71.40	71.90
Duluth I-3	66.00	66.50	66.50	67.00
Erie,Pa. I-3	66.00	66.50	66.50	67.00
Everett,Mass. E1	67.50	68.00	68.50	....
Fontana,Calif. K1	75.00	75.50	....	....
Geneva,Utah C11	66.00	66.50	....	....
GraniteCity,Ill. G4	67.90	68.40	68.90	....
Ironton,Utah C11	66.00	66.50	....	....
Minnequa,Colo. C10	68.00	68.50	69.00	....
Rockwood,Tenn. T3	....	62.50‡	66.50	....
Toledo,Ohio I-3	66.00	66.50	66.50	67.00
Cincinnati, deld.	72.54	73.04	....	....

**Phos. 0.70-0.90%; Phos. 0.30-0.69%, $63.
‡Phos. 0.70-0.90%; Phos. 0.30-0.69%, $63.50.

PIG IRON DIFFERENTIALS

Silicon: Add 75 cents per ton for each 0.25% Si or percentage thereof over base grade, 1.75-2.25%, except on low phos. iron on which base is 1.75-2.00%.

Manganese: Add 50 cents per ton for each 0.25% manganese over 1% or portion thereof.

Nickel: Under 0.50% no extra; 0.50-0.74%, inclusive, add $2 per ton and each additional 0.25%, add $1 per ton.

BLAST FURNACE SILVERY PIG IRON, Gross Ton

(Base 6.00-6.50% silicon; add $1 for each 0.50% silicon or portion thereof over the base grade within a range of 6.50 to 11.50%; starting with silicon over 11.50% add $1.50 per ton for each 0.50% silicon or portion thereof up to 14%; add $1 for each 0.50% Mn over 1%)

Jackson,Ohio I-3, J1	$78.00
Buffalo H1	79.25

ELECTRIC FURNACE SILVERY IRON, Gross Ton

(Base 14.01-14.50% silicon; add $1 for each 0.5% Si to 18%; $1.25 for each 0.50% Mn over 1%; $2 per gross ton premium for 0.045% max P)

CalvertCity,Ky. P15	$99.00
NiagaraFalls,N.Y. P15	99.00
Keokuk,Iowa Open-hearth & Fdry. $9 freight allowed K2	103.50
Keokuk,Iowa O.H. & Fdry. 12½ lb piglets, 16% Si, max fr'gt allowed up to $9, K2	106.50

LOW PHOSPHORUS PIG IRON, Gross Ton

Lyles,Tenn. T3 (Phos. 0.035% max)	$78.50
Rockwood,Tenn. T3 (Phos. 0.035% max)	78.50
Troy,N.Y. R2 (Phos. 0.035% max)	74.00
Philadelphia, deld.	82.67
Cleveland A7 (Intermediate) (Phos. 0.036-0.075% max)	71.00
Duluth I-3 (Intermediate) (Phos. 0.036-0.075% max)	71.00
Erie,Pa. I-3 (Intermediate) (Phos. 0.036-0.075% max)	71.00
NevilleIsland,Pa. P6 (Intermediate) (Phos. 0.036-0.075% max)	71.00

Warehouse Steel Products

Representative prices, per pound, subject to extras, f.o.b. warehouse. City delivery charges are 15 cents per 100 lb except: Moline, Norfolk, Richmond, Washington, 20 cents; Baltimore, Boston, Los Angeles, New York, Philadelphia, Portland, Spokane, San Francisco, 10 cents; Atlanta, Chattanooga, Houston, Seattle, no charge.

	SHEETS				STRIP	BARS			Standard Structural Shapes	PLATES	
	Hot-Rolled	Cold-Rolled	Gal. 10 Ga.†	Stainless Type 302	Hot-Rolled*	H.R. Rounds	C.F. Rds.‡	H.R. Alloy 4140††[5]		Carbon	Floor
Atlanta	8.59§	9.86§	....	....	8.64	9.01	10.68	....	9.05	8.97	10.90
Baltimore	8.28	8.88	9.68	....	8.76	9.06	11.34#	15.18	9.19	8.66	10.14
Birmingham	8.18	9.45	11.07	....	8.23	8.60	10.57	....	8.64	8.56	10.70
Boston	9.38	10.44	11.45	53.50	9.42	9.73	12.90#	15.28	9.63	9.72	11.20
Buffalo	8.40	9.00	10.07	55.98	8.50	8.80	10.90#	15.00	8.90	8.90	10.45
Chattanooga	8.35	9.69	9.65	....	8.40	8.77	10.46	....	8.88	8.80	10.66
Chicago	8.20	9.45	10.10	53.00	8.23	8.60	8.80	14.65	8.64	8.56	9.88
Cincinnati	8.34	9.48	10.10	52.43	8.54	8.92	9.31	14.96	9.18	8.93	10.21
Cleveland	8.18	9.45	10.20	52.33	8.33	8.69	10.80#	14.74	9.01	8.79	10.11
Dallas	7.50	8.80	....	....	7.65	7.60	11.01	....	9.00	9.45	10.70
Denver	9.38	11.75	....	....	9.41	9.78	11.10	....	7.65	8.45	9.70
Detroit	8.43	9.70	10.45	56.50	8.58	8.90	9.15	14.91	9.18	8.91	10.13
Erie, Pa.	8.20	9.45	9.95[10]	....	8.50	8.75	9.05[10]	....	9.00	8.85	10.10
Houston	7.10	8.40	8.45	54.32	7.25	7.20	11.10	13.50	7.25	8.05	9.30
Jackson, Miss.	8.52	9.79	....	....	8.57	8.94	10.68	....	8.97	8.90	10.74
Los Angeles	9.60	9.40	11.70	57.60	8.55	8.70	12.00	....	8.60	8.55	10.70
Memphis, Tenn.	8.55	9.80	....	....	8.60	8.97	11.96#	....	9.01	8.93	10.56
Milwaukee	8.33	9.58	10.23	....	8.36	8.73	9.03	14.78	8.85	8.69	10.01
Moline, Ill.	8.55	9.80	10.45	....	8.58	8.95	9.15	....	8.99	8.91	....
New York	8.87	10.13	10.56	53.08	9.31	9.57	12.76#	15.09	9.35	9.43	10.71
Norfolk, Va.	8.40	....	....	....	9.10	9.10	12.00	....	9.40	8.85	10.35
Philadelphia	8.00	8.90	9.92	52.69	8.70	8.65	11.51#	15.01	8.50	8.75	9.75**
Pittsburgh	8.18	9.45	10.45	52.00	8.33	8.60	10.80#	14.65	8.64	8.56	9.88
Portland, Oreg.	8.50	11.20	11.55	57.38	9.55	8.65	14.50	15.95	8.65	8.30	11.50
Richmond, Va.	8.40	....	10.40	....	9.10	9.00	....	....	9.40	8.85	10.35
St. Louis	8.54	9.79	10.46	....	8.59	8.97	9.41	15.01	9.10	8.93	10.25
St. Paul	8.79	10.04	10.71	....	8.84	9.21	9.66	....	9.38	9.30	10.49
San Francisco	9.35	10.75	11.00	55.10	10.95	9.70	11.34#	16.10	9.50	9.60	12.00
Seattle	9.95	11.15	12.20	57.38	10.00	10.10	14.05	16.35	9.80	9.70	12.10
South'ton, Conn.	9.07	10.33	10.71	....	9.48	9.74	....	....	9.57	9.57	10.91
Spokane	9.95	11.15	12.00	57.38	10.00	10.10	14.05	17.20	9.80	9.70	12.10
Washington	8.88	....	....	....	9.36	9.56	10.94	....	9.79	9.26	10.74

*Prices do not include gage extras; †prices include gage and coating extras; ‡includes 35-cent bar quality extras; §42 in. and under; **¼ in. and heavier; ††as annealed; ‡‡over 4 in.; §§over 3 in.; #1 in. round C-1018.

Base quantities, 2000 to 4999 lb except as noted; cold-rolled strip and cold-finished bars, 2000 lb and over except in Seattle, 2000 to 9999 lb, and in Los Angeles, 6000 lb and over; stainless sheets, 8000 lb except in Chicago, New York, Boston, Seattle, Portland, Oreg., 10,000 lb and in San Francisco, 2000 to 4999 lb; hot-rolled products on West Coast, 2000 to 9999 lb, except in Portland, Oreg., 1000 to 9999 lb; [2]—400 to 9999 lb; [8]—1000 to 1999 lb; [8]—2000 to 3999 lb; [10]—2000 lb and over.

Refractories

Fire Clay Brick (per 1000)

High-Heat Duty: Ashland, Grahn, Hayward, Hitchins, Haldeman, Olive Hill, Ky., Athens, Troup, Tex., Beech Creek Clearfield, Curwensville, Lock Haven, Lumber, Orviston, West Decatur, Winburne, Snow Shoe, Pa., Bessemer, Ala., Farber, Mexico, St. Louis, Vandalia, Mo., Ironton, Oak Hill, Parral, Portsmouth, Ohio, Ottawa, Ill., Stevens Pottery, Ga., $135; Salina, Pa., $140; Niles, Ohio, $138; Cutler, Utah, $165.

Super-Duty: Ironton, Ohio; Vandalia, Mo., Olive Hill, Ky., Clearfield, Salina, Winburne, Snow Shoe, Pa., New Savage, Md., St. Louis, $175; Stevens Pottery, Ga., $185; Cutler, Utah, $233.

Silica Brick (per 1000)

Standard: Alexandria, Claysburg, Mt. Union, Sproul, Pa., Ensley, Ala., Pt. Matilda, Pa., Portsmouth, Ohio, Hawstone, Pa., $150; Warren, Niles, Windham, Ohio, Hays, Latrobe, Morrisville, Pa., $155; E. Chicago, Ind., Joliet, Rockdale, Ill., $160; Lehigh, Utah, $175; Los Angeles, $180.

Super-Duty: Sproul, Hawstone, Pa., Niles, Warren, Windham, Ohio, Leslie, Md., Athens, Tex., $157; Morrisville, Hays, Latrobe, Pa., $160; E. Chicago, Ind., $167; Curtner, Calif., $182.

Semisilica Brick (per 1000)

Clearfield, Pa., $140; Philadelphia, $137; Woodbridge, N. J., $135.

Ladle Brick (per 1000)

Dry Pressed: Alsey, Ill., Chester, New Cumberland, W. Va., Freeport, Johnstown, Merrill Station, Vanport, Pa., Mexico, Vandalia, Mo., Wellsville, Irondale, New Salisbury, Ohio, $96.75; Clearfield, Pa., Portsmouth, Ohio, $102.

High-Alumina Brick (per 1000)

50 *Per Cent:* St. Louis, Mexico, Vandalia, Mo., $235; Danville, Ill., $238; Philadelphia, Clearfield, Pa., $230; Orviston, Snow Shoe, Pa., $245.

60 *Per Cent:* St. Louis, Mexico, Vandalia, Mo., $295; Danville, Ill., $298; Clearfield, Orviston, Snow Shoe, Pa., $305; Philadelphia, $310.

70 *Per Cent:* St. Louis, Mexico, Vandalia, Mo., $335; Danville, Ill., $338; Clearfield, Orviston, Snow Shoe, Pa., $345; Philadelphia, $350.

Sleeves (per 1000)

Reesdale, Johnstown, Bridgeburg, Pa., St. Louis, $188.

Nozzles (per 1000)

Reesdale, Johnstown, Bridgeburg, Pa., St. Louis, $310.

Runners (per 1000)

Reesdale, Johnstown, Bridgeburg, Pa., $234.

Dolomite (per net ton)

Domestic, dead-burned, bulk, Billmeyer, Blue Bell, Williams, Plymouth Meeting, York, Pa., Millville, W. Va., Bettsville, Millersville, Martin, Woodville, Gibsonburg, Narlo, Ohio, $16.75; Thornton, McCook, Ill., $17; Dolly Siding, Bonne Terre, Mo., $15.

Magnesite (per net ton)

Domestic, dead-burned, ½ in. grains with fines: Chewelah, Wash., Luning, Nev., $46; ⅜ in. grains with fines: Baltimore, $73.

Ores

Lake Superior Iron Ore

(Prices effective for the 1958 shipping season, gross ton, 51.50% iron natural, rail of vessel, lower lake ports.)

Mesabi bessemer	$11.60
Mesabi nonbessemer	11.45
Old Range bessemer	11.85
Old Range nonbessemer	11.70
Open-hearth lump	12.70
High phos.	11.45

The foregoing prices are based on upper lake rail freight rates, lake vessel freight rates, handling and unloading charges, and taxes thereon, which were in effect Jan. 30, 1957, and increases or decreases after that date are absorbed by the seller.

Eastern Local Iron Ore

Cents per unit, deld. E. Pa.

New Jersey, foundry and basic 62-64% concentrates	25.00-27.00

Foreign Iron Ore

Cents per unit, c.i.f. Atlantic ports

Swedish basic, 65%	25.00
N. African hematite (spot)	nom.
Brazilian iron ore, 68-69%	27.00

Tungsten Ore

Net ton, unit

Foreign wolframite, good commercial quality	$11.80-12.00*
Domestic, concentrates f.o.b. milling points	20.00

*Before duty.

Manganese Ore

Mn 46-48%, Indian (export tax included), $135 per long ton unit, c.i.f. U. S. ports, duty for buyer's account; other than Indian, nominal; contracts by negotiation.

Metallurgical Coke

Price per net ton

Beehive Ovens

Connellsville, Pa., furnace	$14.75-15.75
Connellsville, Pa., foundry	18.00-18.50

Oven Foundry Coke

Birmingham, ovens	$28.85
Cincinnati, deld.	31.84
Buffalo, ovens	30.50
Camden, N. J., ovens	29.50
Detroit, ovens	30.50
Pontiac, Mich., deld.	32.45
Saginaw, Mich., deld.	34.03
Erie, Pa., ovens	30.50
Everett, Mass., ovens:	
New England, deld.	31.55*
Indianapolis, ovens	29.75
Ironton, Ohio, ovens	29.00
Cincinnati, deld.	31.84
Kearny, N. J., ovens	29.75
Milwaukee, ovens	30.50
Neville Island (Pittsburgh), Pa., ovens	29.25
Painesville, Ohio, ovens	30.50
Cleveland, deld.	32.69
Philadelphia, ovens	29.50
St. Louis, ovens	31.50
St. Paul, ovens	29.75
Chicago, deld.	33.29
Swedeland, Pa., ovens	29.50
Terre Haute, Ind., ovens	29.75

*Or within $4.85 freight zone from works.

Coal Chemicals

Spot, cents per gallon, ovens

Pure benzene	36.00
Toluene, one deg	29.50
Industrial xylene	32.00-34.00

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Ferroalloys

MANGANESE ALLOYS

Spiegeleisen: Carlot, per gross ton, Palmerton, Neville Island, Pa., 21-23% Mn, $105; 19-21% Mn, 1-3% Si, $102.50; 16-19% Mn, $100.50.

Standard Ferromanganese: (Mn 74-76%, C 7% approx.) Base price per net ton; $245, Johnstown, Duquesne, Sheridan, Neville Island, Pa.; Alloy, W. Va.; Ashtabula, Marietta, O.; Sheffield, Ala.; Portland, Oreg. Add or subtract $2 for each 1% or fraction thereof of contained manganese over 76% or under 74%, respectively. (Mn 79-81%). Lump $253 per net ton, f.o.b. Anaconda or Great Falls, Mont. Add $2.60 for each 1% above 81%; subtract $2.60 for each 1% below 79%, fractions in proportion to nearest 0.1%.

High-Grade Low-Carbon Ferromanganese: (Mn 85-90%). Carload, lump, bulk, max 0.07% C, 35.1c per lb of contained Mn, carload packed 36.4c, ton lots 37.9c, less ton 39.1c. Delivered. Deduct 1.5c for max 0.15% C grade from above prices, 3c for max 0.03% C, 3.5c for max 0.5% C, and 6.5c for max 75% C—max 7% Si. **Special Grade:** (Mn 90% min, C 0.07% max, P 0.06% max). Add 2.05c to the above prices. Spot, add 0.25c.

Medium-Carbon Ferromanganese: (Mn 80-85%, C 1.25-1.5%, Si 1.5% max). Carload, lump, bulk, 25.5c per lb of contained Mn, packed, carload 26.8c, ton lot 28.4c, less ton 29.6c. Delivered. Spot, add 0.25c.

Manganese Metal: 2" x D (Mn 95.5% min, Fe 2% max, Si 1% max, C 0.2%). Carload, lump, bulk, 45c per lb of metal; packed, 45.75c; ton lot 47.25c; less ton lot 49.25c. Delivered. Spot, add 2c.

Electrolytic Manganese Metal: Min carload, 31c; 2000 lb to min carload, 36c; less carload, 38c; 50 lb cans, add 0.5c per lb. Premium for hydrogen-removed metal, 0.75c per lb. Prices are f.o.b. cars Knoxville, Tenn., freight allowed to St. Louis or any point east of Mississippi; or f.o.b. Marietta, O., freight allowed.

Silicomanganese: (Mn 65-68%). Carload, lump, bulk 1.50% C grade, 18-20% Si, 12.8c per lb of alloy. Packed, c.l. 14c, ton 14.45c, less ton 15.45c, f.o.b. Alloy, W. Va.; Ashtabula, Marietta, O.; Sheffield, Ala.; Portland, Oreg. For 2% C grade, Si 15-17%, deduce 0.2% from above prices. For 3% C grade Si 12-14.5%, deduct 0.4c from above prices. Spot, add 0.25c.

TITANIUM ALLOYS

Ferrotitanium, Low-Carbon: (Ti 20-25%, Al 3.5% max, Si 4% max, C 0.10% max). Contract, ton lot, 2" x D, $1.50 per lb of contained Ti; less ton $1.35. (Ti 38.43%, Al 8% max, Si 4% max, C 0.10% max). Ton lot $1.35, less ton $1.37, f.o.b. Niagara Falls, N. Y., freight allowed to St. Louis. Spot, add 5c.

Ferrotitanium, High-Carbon: (Ti 15-18%, C 6-8%). Contract $200 per ton, f.o.b. Niagara Falls, N. Y., freight allowed to destinations east of Mississippi River and north of Baltimore and St. Louis.

Ferrotitanium, Medium-Carbon: (Ti 17-21%, C 2-4.5%). Contract $225 per ton, f.o.b. Niagara Falls, N. Y., freight not exceeding St. Louis rate allowed.

CHROMIUM ALLOYS

High-Carbon Ferrochrome: Contract, c.l. lump, bulk 28.75c per lb of contained Cr; c.l. packed 30.30c, ton lot 32.05c; less ton 33.45c. Delivered. Spot, add 0.25c.

Low-Carbon Ferrochrome: Cr 63-66% (Simplex), carload, lump, bulk, C 0.025% max, 36.75c per lb contained Cr; 0.010% max, 37.75c. Ton lot, add 3.5c; less ton, add 5.2c. Delivered.

Cr 67-71%, carload, lump, bulk, C 0.02% max, 41.00c per lb contained Cr; 0.025% max, 39.75c; 0.05% max, 39.00c; 0.10% max, 38.50c; 0.20% max, 38.25c; 0.50% max, 38.00c; 1.0% max, 37.75c; 1.5% max, 37.50c; 2.0% max, 37.25c. Ton lot, add 3.4c; less ton lot, add 5.1c. Delivered.

Foundry Ferrochrome, High-Carbon: (Cr 61-66%, C 5-7%, Si 7-10%). Contract, c.l., 2 in. x D, bulk 30.05c per lb of contained Cr. Packed, c.l. 31.65c, ton 33.45c, less ton 34.95c. Delivered. Spot, add 0.25c.

Foundry Ferrosilicon Chrome: (Cr 50-54%, Si 28-32%, C 1.25% max), Contract, carload, packed, SM x D, 21.25c, per lb of alloy, ton lot 22.50c; less ton lot 23.70c. Delivered. Spot, add 0.25c.

Ferrochrome-Silicon: Cr 39-41%, Si 42-45%, C 0.05% max or Cr 33-36%, Si 45-48%, C 0.05% max. Carload, lump, bulk, 3" x down and 2" down, 27.50c per lb contained Cr, 14.20c per lb contained Si. 0.75" x down, 28.65c per lb contained Cr, 14.20c per lb contained Si. Delivered.

Chromium Metal Electrolytic: Commercial grade (Cr 99.8% min, metallic basis, Fe 0.2% max). Contract, carlot, packed 2" x D plate (about ⅛" thick) $1.29 per lb, ton lot $1.31, less ton lot $1.33. Delivered. Spot, add 5c.

VANADIUM ALLOYS

Ferrovanadium: Open-hearth grade (V 50-55%, Si 8% max, C 3% max). Contract, any quantity, $3.20 per lb of contained V. Delivered. Spot, add 10c. **Special Grade:** (V 50-55% or 70-75%, Si 2% max, C 0.5% max) $3.30. **High Speed Grade:** (V 50-55%; or 70-75%, Si 1.50% max, C 0.20% max) $3.40.

Grainal: Vanadium Grainal No. 1 $1.05 per lb; No. 79, 50c, freight allowed.

Vanadium Oxide: Contract less carload lot, packed, $1.38 per lb contained V_2O_5, freight allowed. Spot, add 5c.

SILICON ALLOYS

25-30% Ferrosilicon: Contract, carload, lump, bulk, 20.0c per lb of contained Si. Packed 21.40c; ton lot 22.50c, f.o.b. Niagara Falls, N. Y., freight not exceeding St. Louis rate allowed.

50% Ferrosilicon: Contract, carload, lump, bulk, 14.20c per lb of contained Si. Packed c.l. 16.70c, ton lot 18.15c, less ton 19.80c, f.o.b. Alloy, W. Va.; Ashtabula, Marietta, O.; Sheffield, Ala.; Portland, Oreg. Spot, add 0.45c.

Low-Aluminum 50% Ferrosilicon: (Al 0.40% max). Add 1.45c to 50% ferrosilicon prices.

65% Ferrosilicon: Contract, carload, lump, bulk, 15.25c per lb contained silicon. Packed, c.l. 17.25c, ton lot 19.05c; less ton 20.4c. Delivered. Spot, add 0.35c.

75% Ferrosilicon: Contract, carload, lump, bulk, 16.4c per lb of contained Si. Packed, c.l. 18.30c, ton lot 19.95c, less ton 21.2c. Delivered. Spot, add 0.3c.

90% Ferrosilicon: Contract, carload, lump, bulk, 19.5c per lb of contained Si. Packed, c.l. 21.15c, ton lot 22.55c, less ton 23.6c. Delivered. Spot add 0.25c.

Silicon Metal: (98% min Si, 0.75% max Fe, 0.07% max Ca). C.l. lump, bulk, 22.00c per lb of Si. Packed, c.l. 23.65c, ton lot 24.95c, less ton 25.95c. Add 0.5c for max 0.03% Ca grade. Deduct 0.5c, for max 1% Fe grade analyzing min 99.75% Si; 0.75c for max 1.25% Fe grades analyzing min 96.75% Si. Spot, add 0.25c.

Alsifer: (Approx 20% Al, 40% Si, 40% Fe). Contract, basis f.o.b. Niagara Falls, N. Y., lump, carload, bulk, 10.65c per lb of alloy; ton lot, packed, 11.8c.

ZIRCONIUM ALLOYS

12-15% Zirconium Alloy: (Zr 12-15%, Si 39-43%, C 0.20% max). Contract, c.l. lump, bulk 9.25c per lb of alloy. Packed, c.l. 10.45c, ton lot 11.6c, less ton 12.45c. Delivered. Spot, add 0.25c.

35-40% Zirconium Alloy: Zr 35-40%, Si 47-52%, Fe 8-12%, C 0.50% max). Contract, carload, lump, packed 27.25c per lb of alloy, ton lot 28.4c, less ton 29.65c. Freight allowed. Spot, add 0.25c.

BORON ALLOYS

Ferroboron: (B 17.50% min, Si 1.50% max, Al 0.50% max, C 0.50% max). Contract, 100 lb or more 1" x D, $1.20 per lb of alloy; less than 100 lb $1.30. Delivered. Spot, add 5c. F.o.b. Washington, Pa., prices, 100 lb and over are as follows: Grade A (10-14% B) 85c per lb; Grade B (14-18% B) $1.20; Grade C (19% min B) $1.50.

Borosil: (3 to 4% B, 40 to 45% Si). Carload, bulk, lump, or 3" x D, $5.25 per lb of contained B. Packed, carload $5.40, ton to c.l. $5.50, less ton $5.60. Delivered.

Bortam: (B 1.5-1.9%). Ton lot, 45c per lb; less than ton lot, 50c per lb.

Carbortam: (B 1 to 2%). Contract, lump, carload 9.50c per lb f.o.b. Suspension Bridge, N. Y., freight allowed same as high-carbon ferrotitanium.

CALCIUM ALLOYS

Calcium-Manganese-Silicon: (Ca 16-20%, Mn 14-18% and Si 53-59%). Contract, carload, lump, bulk 23c per lb of alloy, carload packed 24.25c, ton lot 26.15c, less ton 27.15c. Delivered. Spot, add 0.25c.

Calcium-Silicon: (Ca 30-33%, Si 60-65%, Fe 1.5-3%). Contract, carload, lump, bulk 24c per lb of alloy, carload packed 25.65c, ton lot 27.95c, less ton 29.45c. Delivered. Spot, add 0.25c.

BRIQUETTED ALLOYS

Chromium Briquets: (Weighing approx 3¾ lb each and containing 2 lb of Cr). Contract, carload, bulk 19.60c per lb of briquet, carload packed in box pallets 19.80c, in bags 20.70c; 3000 lb to c.l. in box pallets 21.00c; 2000 lb to c.l. in bags 21.90c; less than 2000 lb in bags 22.80c. Delivered. Add 0.25c for notching. Spot, add 0.25c.

Ferromanganese Briquets: (Weighing approx 3 lb and containing 2 lb of Mn). Contract, carload, bulk 14.8c per lb of briquet; c.l., packed, pallets 15c, bags 16c; 3000 lb to c.l., pallets 16.2c; 2000 lb to c.l., bags 17.2c; less ton 18.1c. Delivered. Add 0.25c for notching. Spot, add 0.25c.

Silicomanganese Briquets: (Weighing approx 3½ lb and containing 2 lb of Mn and approx ¾ lb of Si). Contract, c.l. bulk 15.1c per lb of briquet; c.l. packed, pallets, 15.3c; bags 16.3c. 3000 lb to c.l., pallets, 16.5c; 2000 lb to c.l. bags 17.5c; less ton 18.4c. Delivered. Add 0.25c for notching. Spot, add 0.25c.

Silicon Briquets: (Large size—weighing approx 5 lb and containing 2 lb of Si). Contract, carload, bulk 7.7c per lb of briquet; packed, pallets, 7.9c; bags 8.9c; 3000 lb to c.l., pallets 9.5c; 2000 lb to c.l., bags 10.5c; less ton 11.4c. Delivered. Spot, add 0.25c. (Small size—weighing approx 2½ lb and containing 1 lb of Si). Carload, bulk 7.85c. Packed, pallets 8.05c; bags 9.05c; 3000 lb to c.l., pallets 9.65c; 2000 lb to c.l., bags, 10.65c; less ton 11.55c. Delivered. Add 0.25c for notching, small size only. Spot, add 0.25c.

Molybdic-Oxide Briquets: (Containing 2½ lb of Mo each). $1.41 per pound of Mo contained, f.o.b. Langeloth, Pa.

TUNGSTEN ALLOYS

Ferrotungsten: (70-80%), 5000 lb W or more $2.15 per lb (nominal) of contained W. Delivered.

OTHER FERROALLOYS

Ferrocolumbium: (Cb 50-60%, Si 8% max, C 0.4% max). Ton lots 2" x D, $4 per lb of contained Cb; less ton lots, $4.05 (nominal), Delivered.

Ferrotantalum—Columbium: (Cb 40% approx, Ta 20% approx, and Cb plus Ta 60% min, C 0.30% max). Ton lot 2" x D, $3.80 per lb of contained Cb plus Ta, delivered; less ton lot $3.85 (nominal).

SMZ Alloy: (Si 60-65%, Mn 5-7%, Zr 5.7%, Fe 20% approx). Contract, c.l. packed ½-in. x 12 M 20.00c per lb of alloy, ton lot 21.15c, less ton 22.40c. Delivered. Spot, add 0.25c.

Graphidox No. 5: (Si 48-52%, Ca 5-7%, Ti 9-11%). C.l. packed, 19c per lb of alloy, ton lot 20.15c; less ton lot 21.4c, f.o.b. Niagara Falls, N. Y.; freight allowed to St. Louis.

V-5 Foundry Alloy: (Cr 38-42%, Si 17-19%, Mn 8-11%). C.l. packed 18.1c per lb of alloy; ton lot 19.55c; less ton lot 20.8c, f.o.b. Niagara Falls, N. Y.; freight allowed to St. Louis.

Simanal: (Approx 20% each Si, Mn, Al; bal Fe). Lump, carload, bulk 18.50c. Packed c.l. 19.50c, 2000 lb to c.l. 20.50c, less than 2000 lb 21c per lb of alloy. Delivered.

Ferrophosphorus: (23-25% based on 24% P content with unitage of $4 for each 1% of P above or below the base); carload, f.o.b. sellers' works. Mt. Pleasant, Siglo, Tenn., $110 per gross ton.

Ferromolybdenum: (55-75%). Per lb of contained Mo, in 200-lb container, f.o.b. Langeloth and Washington, Pa. $1.68 in all sizes except powdered which is $1.74.

Technical Molybdic-Oxide: Per lb of contained Mo, in cans, $1.39; in bags, $1.38, f.o.b. Langeloth and Washington, Pa.

(Concluded from Page 126)

A San Francisco area steelmaker reports his April bookings were the heaviest since May, 1957. Despite a decline in orders in the first quarter, this producer says the period turned out to be better than the first quarters of 1949, 1950, and 1954.

Postwar expansion of Alan Wood Steel Co., Conshohocken, Pa., cost over $61 million, says Harleston R. Wood, president. The cost includes construction of new hot and cold rolled strip mills, a modernized plate mill, and additional open hearth and blast furnace capacity.

STRUCTURAL SHAPES . . .

STRUCTURAL STEEL PLACED

1000 tons, plant building, Goodyear Tire & Rubber Co., Apple Grove, W. Va., to Levinson Steel Co., Pittsburgh.

930 tons, four-span plate girder bridge, Roosevelt Boulevard, Philadelphia, to Phoenix Bridge Co., Phoenixville, Pa.; McClosky & Co., Philadelphia, general contractor.

500 tons, estimated, state highway bridges, Prince George County, Virginia, to Marko Engineering Co., Charlotte, N. C.; Blythe Bros. Co. Inc., Charlotte, general contractor.

400 tons, state highway structures, Beaver County, Pennsylvania, to American Bridge Div., U. S. Steel Corp., Pittsburgh; O'Brien & Redmond, Devon, Pa., general contractor.

300 tons or more, addition to Benson Hotel, Portland, Oreg., reported placed with Joseph Fought Co., Portland.

185 tons, chemical building, Forestdale, Philadelphia, filtration plant, to Frank M. Weaver & Co. Inc., Lansdale, Pa.

STRUCTURAL STEEL PENDING

13,500 tons, lower level suspended structure, George Washington Bridge, New York; bids May 27, Port of New York Authority, New York.

6550 tons, U. S. and Canadian approach superstructures, international suspension bridge, St. Lawrence River, Ogdensburg, N. Y.-Greenville, Ont., Dominion Structural Steel Ltd., Montreal, Que., low, two contracts, direct, Albany, N. Y., opening Apr. 24.

1850 tons, plate girder and I-beam bridge, also five I-beam bridges, Harrisburg, Pa.; Berlanti Construction Co., New York, low on general contract.

1430 tons, four welded plate girder and two rolled beam bridges, Scajaquada Creek Expressway, Erie County, New York; Johnson, Drake & Piper Inc., new low on general contract.

1000 tons, state highway bridges, Middleboro, Mass.; J. F. White Contracting Co., Westwood, Mass., low on the general contract.

900 tons, hospital buildings, Warnersville, Pa., general contract bids in.

825 tons, tunnel supports and powerhouse, Flaming Gorge Dam, Green River, Utah; bids to Bureau of Reclamation, Manila, Utah, June 10.

600 tons, viaduct structure, bypass, relocation Route 2, North Adams, Mass.; J. F. Fitzgerald Construction Co., Canton, Mass., low on general contract.

500 tons, Fourth Street county bridge, Allentown, Pa.

350 tons, construction, Priest River Dam, Washington State; bids to Skagit County PUD No. 1, Mt. Vernon, June 2.

REINFORCING BARS . . .

REINFORCING BARS PLACED

250 tons, Bank of California parking project, Seattle, to Joseph T. Ryerson & Son Inc., Seattle; General Construction Co., Seattle, general contractor.

65 tons, Washington state highway project at St. Johns, to Bethlehem Pacific Coast Steel Corp., Seattle; Snitely Bros. Construction Co., Wenatchee, Wash., general contractor.

50 tons, Glasgow (Mont.) Air Base project, to Bethlehem Pacific Coast Steel Corp., Seattle.

REINFORCING BARS PENDING

10,000 tons, John Day Dam, Columbia River, bids to U. S. Engineer, Walla Walla, Wash., in June.

2200 tons, also miscellaneous steel, Flaming Gorge Dam, Green River, Utah; bids to Bureau of Reclamation, Manila, Utah, June 10.

300 tons, eight highway passes, Idaho, Kootenai County; general contract awarded Henry Hagman, Spokane, Wash., low at $721,533.

165 tons, Washington state highway project, Clark County; general contract to O. C. Bennard, Portland, Oreg., low at $166,432.

167 tons, Washington state highway projects, Snohomish and Klickitat Counties; bids to Olympia, Wash., May 20.

135 tons, Washington state highway project, King-Snohomish Counties; bids to Olympia, Wash., May 20.

PLATES . . .

PLATES PLACED

5000 tons, sheet steel piling for cofferdam, John Day Dam project, Columbia River, to Columbia-Geneva Steel Div., U. S. Steel Corp., Chicago, by U. S. Engineer, Walla Walla, Wash.

PLATES PENDING

500 tons, three-deck cargo barges and floating derrick; bids May 15, Commissioner of Marine and Aviation, New York.

100 tons, marine boiler plate, General Stores Supply, Navy, Philadelphia; bids May 14; also floor plate, same date.

PIPE . . .

CAST IRON PIPE PENDING

150 tons, 19,250 ft of 6 and 4 in. pipe; bids to King County District No. 90, Seattle, May 13.

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Chromium	5.00%	Silicon	0.30%
Molybdenum	1.25%	Tungsten	0.50%
Vanadium	0.30%	Chromium	0.50%
		Vanadium	0.20%

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No need to penalize yourself with the extra costs and troubles of surface-grinding your tool and die steel—when DoALL does it for you at no extra cost!

All DoALL precision-ground tool and die steel is checked for a 25 micro-inch RMS finish *or better!*

This job-ready finish can cut your tool, die, gage and fixture costs at least 15% by doing away with all surface-grinding at your end. No chance for grinding spoilage, either. No waste.

Having more than better surface finish, DoALL Tool and Die Steel also rewards you with precise dimensional accuracy. Size is accurate to ±.001 thickness,+.005-.000 width, with squareness edge to surface .003 per inch of thickness.

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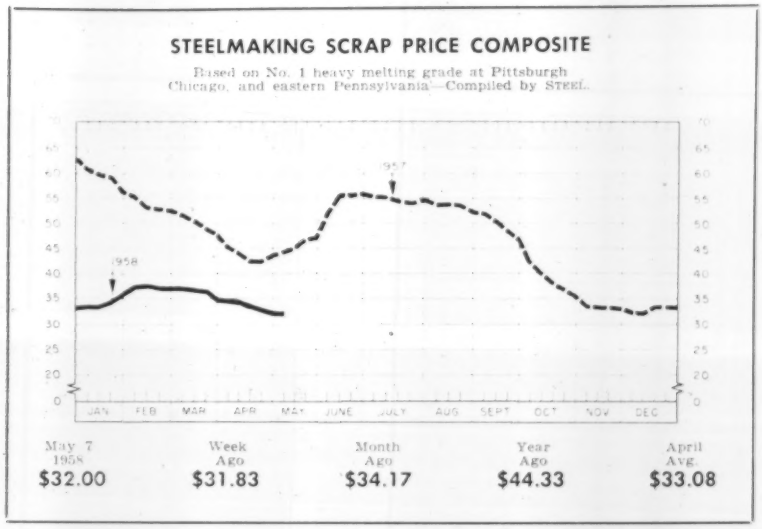

STEELMAKING SCRAP PRICE COMPOSITE
Based on No. 1 heavy melting grade at Pittsburgh Chicago, and eastern Pennsylvania—Compiled by STEEL.
1957
1958
JAN FEB MAR APR MAY JUNE JULY AUG SEPT OCT NOV DEC
May 7 1958 $32.00
Week Ago $31.83
Month Ago $34.17
Year Ago $44.33
April Avg. $33.08

Scrap Index Rise Reverses Trend

STEEL's composite on the prime grade advances 17 cents to $32, reflecting firmer market at Chicago. Two point jump in the national ingot rate provides encouraging note

Scrap Prices, Page 140

Chicago — Prices on the leading grades of open hearth scrap are up $1 to $2 a ton in the first significant movement in several weeks. Quotations have been at the lowest levels in about four years.

The reason for the stronger tone isn't apparent. There are no indications that the district steelmaking rate is headed for an early upturn. The ripple seems to come from brokers offering dealers higher prices, suggesting the need of brokers for good material to cover outstanding contracts with mills.

Cast iron grades are holding at unchanged price levels.

Philadelphia—Prices on the steel grades of scrap appear to have stabilized with buying light. No. 1 cupola and heavy breakable machinery are off $1 a ton, but the steel grades are steadier at $35 for No. 1 heavy melting, delivered eastern Pennsylvania.

Two vessels are loading export cargoes, but with these tonnages previously covered, the outlook is for a decline in dock shipments through May and June.

New York — Shipments of steel scrap are light, but brokers' buying prices are steadier, including No. 2 bundles at $16-$17, shipping point. Prices on the steel grades may have touched bottom. Export buying is thin.

Boston — Scrap buying for the Worcester, Mass., mill is nearing the end. No. 1 heavy melting for delivery to that point is listed at $31, delivered, but No. 2 heavy melting steel purchases have been completed. Open hearth operations at the Worcester Works, American Steel & Wire Div., U. S. Steel Corp., end about July 1.

Buying of cast iron scrap is light, with iron foundries engaged at no better than 50 per cent of capacity.

Most users' inventories are small, but buying continues in small prompt shipment lots. No inventory building is taking place despite the low prices.

Buffalo—A leading mill bought No. 2 heavy melting at $23, and No. 2 bundles at $21, $3 a ton under the prices it paid for such material a month ago. No. 1 heavy melting is unchanged at $26-$27. No. 1 bundles and other grades of steel scrap also are steady.

Cast scrap is holding, but some dealers anticipate lower prices before this month is out. The blast furnace scrap list is dull. There is virtually no market for turnings. Some specialties are moving in small lots.

Pittsburgh—Scrap market activity is almost nil. Brokers think prices are close to bottom and that the long range trend will be upward. Mill buying may be negligible until operations reach 75 per cent of capacity, and that's not expected before the fourth quarter.

A mill on the fringe of this area paid $33, plus broker's commission, for No. 1 heavy melting and $29, plus commission, for No. 2 heavy melting—both down $1 from previous purchase prices. It paid $25, plus commission, for No. 2 bundles, down $2.

Cleveland—Not much change in the local scrap market is expected until the auto lists come out at the end of the month. Quoted prices are nominal in the absence of active consumer demand. The district steel rate continues depressed at 29.5 per cent of capacity. Announcement by Jones & Laughlin Steel Corp. that resumption of operations at its Cleveland Works (down for repairs since February) will be indefinitely delayed has added to the gloom.

Youngstown — The scrap market here remains in the doldrums. One large steelmaker recently bought No. 1 heavy melting steel at $33, but other consumers indicate they will stay out of the market this month.

Scrap from farm and home clean-up drives is showing up at dealers' yards. One dealer says No. 2 bundle material is moving over his scales at $10 to $15 a ton.

Detroit — The No. 1 grades of steel scrap moved up slightly last

(*Please turn to Page* 145)

HAWKRIDGE METALS CORPORATION
North Hampton, New Hampshire
Producers and Sellers of Ductile
TITANIUM & ZIRCONIUM POWDERS
ALL MESHES
HIGH PURITY 99.2%
COMMERCIAL 98.6%

Iron and Steel Scrap

Consumer prices per gross ton, except as otherwise noted, including brokers' commission, as reported to STEEL, May 7, 1958. *Changes shown in italics.*

STEELMAKING SCRAP COMPOSITE

May 7	$32.00
Apr. 30	31.83
Apr. Avg.	33.08
May 1957	45.75
May 1953	39.17

Based on No. 1 heavy melting grade at Pittsburgh, Chicago, and eastern Pennsylvania.

PITTSBURGH

No. 1 heavy melting	31.00-32.00
No. 2 heavy melting	*27.00-28.00*
No. 1 dealer bundles	31.00-32.00
No. 2 bundles	*23.00-24.00*
No. 1 busheling	32.00-33.00
No. 1 factory bundles	34.00-35.00
Machine shop turnings	13.00-14.00
Mixed borings, turnings	13.00-14.00
Short shovel turnings	17.00-18.00
Cast iron borings	17.00-18.00
Cut structurals:	
2 ft and under	37.00-38.00
3 ft lengths	35.00-36.00
Heavy turnings	28.00-29.00
Punchings & plate scrap	37.00-38.00
Electric furnace bundles	37.00-38.00

Cast Iron Grades

No. 1 cupola	40.00-41.00
Stove plate	40.00-41.00
Unstripped motor blocks	23.00-24.00
Clean auto cast	40.00-41.00
Drop broken machinery	48.00-49.00

Railroad Scrap

No. 1 R.R. heavy melt.	35.00-36.00
Rails, 2 ft and under	53.00-54.00
Rails, 18 in. and under	54.00-55.00
Random rails	50.00-51.00
Railroad specialties	44.00-45.00
Angles, splice bars	47.00-48.00

Stainless Steel Scrap

18-8 bundles & solids	170.00-175.00
18-8 turnings	100.00-105.00
430 bundles & solids	100.00-105.00
430 turnings	50.00-52.00

CHICAGO

No. 1 hvy melt., indus.	31.00-32.00
No. 1 hvy melt., dealer	*28.00-29.00*
No. 2 heavy melting	*27.00-28.00*
No. 1 factory bundles	*35.00-36.00*
No. 1 dealer bundles	*30.00-31.00*
No. 2 bundles	*22.00-23.00*
No. 1 busheling, indus.	*31.00-32.00*
No. 1 busheling, dealer	*28.00-29.00*
Machine shop turnings	*14.00-15.00*
Mixed borings, turnings	*16.00-17.00*
Short shovel turnings	*16.00-17.00*
Cast iron borings	*16.00-17.00*
Cut structurals, 3 ft	35.00-36.00
Punchings & plate scrap	*36.00-37.00*

Cast Iron Grades

No. 1 cupola	38.00-39.00
Stove plate	*44.00-45.00*
Unstripped motor blocks	30.00-31.00
Clean auto cast	43.00-44.00
Drop broken machinery	43.00-44.00

Railroad Scrap

No. 1 R.R. heavy melt.	*44.00-45.00*
R.R. malleable	*48.00-49.00*
Rails, 2 ft and under	*47.00-48.00*
Rails, 18 in. and under	*48.00-49.00*
Angles, splice bars	*43.00-44.00*
Axles	*52.00-53.00*
Rails, rerolling	*48.00-50.00*

Stainless Steel Scrap

18-8 bundles & solids	160.00-165.00
18-8 turnings	85.00-95.00
430 bundles & solids	85.00-95.00
430 turnings	*90.00-95.00*

YOUNGSTOWN

No. 1 heavy melting	*33.00-34.00*
No. 2 heavy melting	22.00-23.00
No. 1 busheling	*33.00-34.00*
No. 1 bundles	*33.00-34.00*
No. 2 bundles	21.00-22.00
Machine shop turnings	9.00-10.00
Short shovel turnings	13.00-14.00
Cast iron borings	13.00-14.00
Low phos.	34.00-35.00
Electric furnace bundles	*34.00-35.00*

Railroad Scrap

No. 1 R.R. heavy melt.	35.00-36.00

CLEVELAND

No. 1 heavy melting	*30.00-31.00*
No. 2 heavy melting	19.00-20.00
No. 1 factory bundles	31.00-32.00
No. 1 bundles	*30.00-31.00*
No. 2 bundles	20.00-21.00
No. 1 busheling	*30.00-31.00*
Machine shop turnings	7.00-8.00
Short shovel turnings	11.00-12.00
Mixed borings, turnings	11.00-12.00
Cast iron borings	11.00-12.00
Cut foundry steel	34.00-35.00
Cut structurals, plates 2 ft and under	*36.00-37.00*
Low phos. punchings & plate	30.00-31.00
Alloy free, short shovel turnings	16.00-17.00
Electric furnace bundles	*31.00-32.00*

Cast Iron Grades

No. 1 cupola	42.00-43.00
Charging box cast	33.00-34.00
Heavy breakable cast	33.00-34.00
Stove plate	*43.00-44.00*
Unstripped motor blocks	25.00-26.00
Brake shoes	33.00-34.00
Clean auto cast	42.00-43.00
Burnt cast	30.00-31.00
Drop broken machinery	47.00-48.00

Railroad Scrap

R.R. malleable	60.00-61.00
Rails, 2 ft and under	56.00-57.00
Rails, 18 in. and under	57.00-58.00
Rails, random lengths	49.00-50.00
Cast steel	44.00-45.00
Railroad specialties	47.00-48.00
Uncut tires	40.00-41.00
Angles, splice bars	46.00-47.00
Rails, rerolling	51.00-52.00

Stainless Steel

(Brokers' buying prices; f.o.b. shipping point)

18-8 bundles, solids	160.00-165.00
18-8 turnings	90.00-95.00
430 clips, bundles, solids	75.00-80.00
430 turnings	40.00-50.00

ST. LOUIS

(Brokers' buying prices)

No. 1 heavy melting	32.00
No. 2 heavy melting	30.00
No. 1 bundles	32.00
No. 2 bundles	23.00
No. 1 busheling	32.00
Machine shop turnings	16.00
Short shovel turnings	18.00

Cast Iron Grades

No. 1 cupola	40.00
Charging box cast	33.00
Heavy breakable cast	33.00
Unstripped motor blocks	34.00
Clean auto cast	44.00
Stove plate	37.00

Railroad Scrap

No. 1 R.R. heavy melt.	*44.50*
Rails, 18 in. and under	50.00
Rails, random lengths	44.00
Rails, rerolling	*47.00*
Angles, splice bars	45.00

BIRMINGHAM

No. 1 heavy melting	30.00-31.00
No. 2 heavy melting	25.00-26.00
No. 1 bundles	30.00-31.00
No. 2 bundles	18.00-19.00
No. 1 busheling	30.00-31.00
Cast iron borings	12.00-13.00
Machine shop turnings	22.00-23.00
Short shovel turnings	23.00-24.00
Bar crops and plates	37.00-38.00
Structurals & plates	36.00-37.00
Electric furnace bundles	35.00-36.00
Electric furnace:	
2 ft and under	34.00-35.00
3 ft and under	33.00-34.00

Cast Iron Grades

No. 1 cupola	48.00-49.00
Stove plate	48.00-49.00
Unstripped motor blocks	37.00-38.00
Charging box cast	22.00-23.00
No. 1 wheels	34.00-35.00

Railroad Scrap

No. 1 R.R. heavy melt.	31.00-32.00
Rails, 18 in. and under	*46.00-47.00*
Rails, rerolling	45.00-46.00
Rails, random lengths	41.00-42.00
Angles, splice bars	37.00-38.00

PHILADELPHIA

No. 1 heavy melting	34.00-35.00
No. 2 heavy melting	31.00
No. 1 bundles	34.00-35.00
No. 2 bundles	24.00
No. 1 busheling	34.00-35.00
Electric furnace bundles	36.00
Mixed borings, turnings	16.00†
Short shovel turnings	18.00
Machine shop turnings	15.00
Heavy turnings	29.00
Structural & plate	39.00-40.00
Couplers, springs, wheels	43.50
Rail crops, 2 ft & under	56.00-58.00

Cast Iron Grades

No. 1 cupola	*38.00*
Heavy breakable cast	*41.00*
Malleable	58.00-59.00
Drop broken machinery	47.00-48.00

NEW YORK

(Brokers' buying prices)

No. 1 heavy melting	29.00-30.00
No. 2 heavy melting	25.00-26.00
No. 1 bundles	29.00-30.00
No. 2 bundles	16.00-17.00
Machine shop turnings	8.00-9.00†
Mixed borings, turnings	9.00-10.00†
Short shovel turnings	11.00-12.00†
Low phos (structurals & plates)	32.00-33.00

Cast Iron Grades

No. 1 cupola	35.00-36.00
Unstripped motor blocks	24.00-25.00
Heavy breakable	33.00-34.00

Stainless Steel

18-8 sheets, clips, solids	135.00-140.00
18-8 borings, turnings	45.00-50.00
410 sheets, clips, solids	50.00-55.00
430 sheets, clips, solids	65.00-70.00

BUFFALO

No. 1 heavy melting	26.00-27.00
No. 2 heavy melting	*22.00-23.00*
No. 1 bundles	26.00-27.00
No. 2 bundles	*20.00-21.00*
No. 1 busheling	26.00-27.00
Mixed borings, turnings	13.00-14.00
Machine shop turnings	10.00-11.00
Short shovel turnings	14.00-15.00
Cast iron borings	13.00-14.00
Low phos. structurals and plate, 5 ft and under	31.00-32.00
2 ft and under	35.00-36.00

Cast Iron Grades

(F.o.b. shipping point)

No. 1 cupola	39.00-40.00
No. 1 machinery	43.00-44.00

Railroad Scrap

Rails, random lengths	45.00-46.00
Rails, 3 ft and under	51.00-52.00
Railroad specialties	35.00-36.00

CINCINNATI

(Brokers' buying prices; f.o.b. shipping point)

No. 1 heavy melting	*29.00-30.00*
No. 2 heavy melting	*25.00-26.00*
No. 1 bundles	*29.00-30.00*
No. 2 bundles	*19.50-20.50*
No. 1 busheling	*29.00-30.00*
Machine shop turnings	*9.00-10.00*
Mixed borings, turnings	*9.00-10.00*
Short shovel turnings	*11.00-12.00*
Cast iron borings	*9.00-10.00*
Low phos. 18 in.	36.00-37.00

Cast Iron Grades

No. 1 cupola	38.00-39.00
Heavy breakable cast	32.00-33.00
Charging box cast	32.00-33.00
Drop broken machinery	45.00-46.00

Railroad Scrap

No. 1 R.R. heavy melt.	33.00-34.00
Rails, 18 in. and under	52.00-53.00
Rails, random lengths	43.00-44.00

HOUSTON

(Brokers' buying prices; f.o.b. cars)

No. 1 heavy melting	*29.00†*
No. 2 heavy melting	*27.00†*
No. 2 bundles	*19.00†*
Machine shop turnings	*12.00*
Crushed turnings	*16.00*
Low phos. plates, structurals	*34.00†*

Cast Iron Grades

No. 1 cupola	*37.00*
Heavy breakable	30.00†
Unstripped motor blocks	*33.00†*

Railroad Scrap

No. 1 R.R. heavy melt.	*31.00†*

BOSTON

(Brokers' buying prices; f.o.b. shipping point)

No. 1 heavy melting	*22.00-23.00*
No. 2 heavy melting	*18.00-19.00*
No. 1 bundles	*22.00-23.00*
No. 2 bundles	*13.00-14.00*
No. 1 busheling	23.00-24.00
Machine shop turnings	5.00-6.00†
Mixed borings, turnings	5.00-6.00†
Short shovel turnings	6.00-7.00†
No. 1 cast	*28.00-29.00*
Mixed cupola cast	*27.00-28.00*
No. 1 machinery cast	*31.00-32.00*

DETROIT

(Brokers' buying prices; f.o.b. shipping point)

No. 1 heavy melting	*21.00-22.00*
No. 2 heavy melting	16.00-17.00
No. 1 bundles	*22.00-23.00*
No. 2 bundles	12.00-13.00
No. 1 busheling	*21.00-22.00*
Machine shop turnings	5.00-6.00
Mixed borings, turnings	6.00-7.00
Short shovel turnings	7.00-8.00
Punchings & plate	*26.00-27.00*

Cast Iron Grades

No. 1 cupola	27.00-28.00
Stove plate	22.00-23.00
Charging box cast	21.00-22.00
Heavy breakable	20.00-21.00
Unstripped motor blocks	11.00-12.00
Clean auto cast	28.00-29.00

SEATTLE

No. 1 heavy melting	27.00†
No. 2 heavy melting	25.00†
No. 1 bundles	21.00†
No. 2 bundles	20.00†
Machine shop turnings	16.00
Mixed borings, turnings	16.00
Electric furnace No. 1	38.00

Cast Iron Grades

No. 1 cupola	31.00
Heavy breakable cast	28.00
Unstripped motor blocks	23.00
Stove plate (f.o.b. plant)	21.00

LOS ANGELES

No. 1 heavy melting	34.00
No. 2 heavy melting	32.00
No. 1 bundles	30.00
No. 2 bundles	22.00
Machine shop turnings	9.00
Shoveling turnings	11.00
Cast iron borings	11.00
Cut structurals and plate 1 ft and under	45.00

Cast Iron Grades

(F.o.b. shipping point)

No. 1 cupola	41.00

Railroad Scrap

No. 1 R.R. heavy melt.	34.00

SAN FRANCISCO

No. 1 heavy melting	32.00
No. 2 heavy melting	30.00
No. 1 bundles	30.00
No. 2 bundles	22.00
Machine shop turnings	15.00
Mixed borings, turnings	15.00
Cast iron borings	15.00
Heavy turnings	15.00
Short shovel turnings	15.00
Cut structurals, 3 ft	40.00

Cast Iron Grades

No. 1 cupola	42.00
Charging box cast	34.00
Stove plate	34.00
Heavy breakable cast	28.00
Unstripped motor blocks	31.00
Clean auto cast	40.00
Drop broken machinery	40.00
No. 1 wheels	34.00

HAMILTON, ONT.

No. 1 heavy melting	30.00
No. 2 heavy melting	26.00
No. 1 bundles	30.00
No. 2 bundles	23.00
Mixed steel scrap	25.00
Mixed borings, turnings	15.00
Busheling, new factory:	
Prepared	30.00
Unprepared	24.00
Short steel turnings	19.00

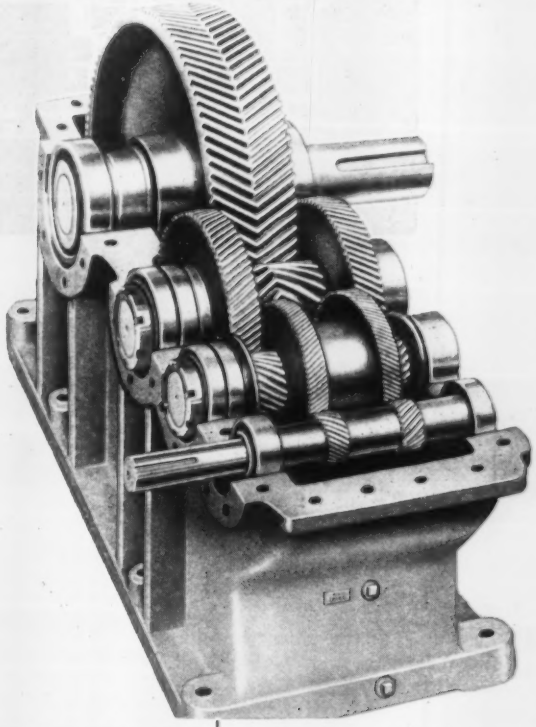
Cast Iron Grades‡

No. 1 machinery cast	45.00-50.00

†Nominal.
‡F.o.b. Hamilton, Ont.

Here's the Reducer with a BACKBONE .... and a BACKGROUND

PHILADELPHIA HERRINGBONE GEAR SPEED REDUCER



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Is Business Improving?

There have been some small gains, but it doesn't look as if the nonferrous industry is on the upswing. Metal sales appear to have hit a plateau

Nonferrous Metal Prices, Pages 144 & 145

METALMEN are becoming more convinced that the worst of the recession is over for the nonferrous industry. The incoming order rate is holding fairly steady for most metals, and there are some scattered reports of business improvement. A strong upturn is still in the future though. The current sales picture is spotty, with conditions varying from industry to industry and from producer to producer.

Here's how the market breaks down for seven metals:

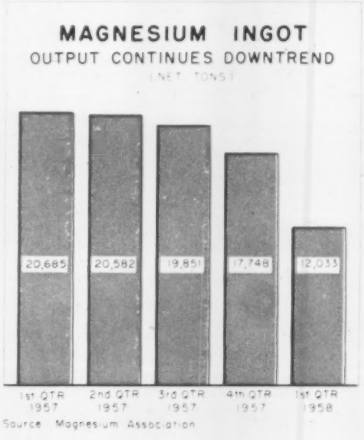
Copper—One producer sums up the industry feeling: "The recession has pretty well hit bottom, but we will probably bump along at present levels for a while." April sales ran at about first quarter levels for the primary producers. Custom smelters have enjoyed better demand for the last two months, but it has largely been at the expense of the primary people.

Customer business hasn't improved noticeably: Brass mills remain down; the wire mill picture is spotty. Opinion differs as to the amount of copper customers are holding in inventory. The general feeling is that stocks are at rock bottom, but some metalmen believe they may still be extremely high.

Aluminum—Sales were better in April than they were in the first quarter—and first quarter sales were better than those in 1957's fourth quarter. The electrical and packaging fields are said to be showing some strength. The consensus is that the aluminum market has been as low as it's going, but it's still too early to tell if the small improvement in sales signifies an upturn.

Titanium—During the first quarter, the industry shipped 1,350,000 lb of mill products, about an 80 per cent improvement over 1957's fourth quarter figure of 749,416 lb. Producers estimate April shipments probably ran about 500,000 lb.

The industry hit bottom last November when 189,613 lb were shipped, but orders have climbed every month since then. Producers hope for continued improvement because of: Depletion of customer inventories, titanium's entry into missile development, and more ordering of civilian jet planes.



Magnesium—April was the best month this year, with orders up 12 per cent over March's. The first quarter showed a 15 per cent gain over the last quarter of 1957, says the Dow Chemical Co. But ingot production was below that of the previous period (see chart).

First quarter shipments of wrought products hit 1975 tons, compared with 1892 tons in the fourth quarter. Business for some fabricators still lags, but the industry seems to have weathered the worst of the recession.

Nickel—Sales in the first quarter ran from "a little worse" to "slightly better." April sales were about at the same rate.

One company believes sales may get worse because customers will continue living off inventories. Another believes business is on a plateau and says customers are buying to fill current requirements.

Lead-Zinc — Business has improved some since December, but sales are still mediocre and fluctuate from week to week. One firm reports its April lead sales dropped 5 per cent from the March level, while zinc sales went up about 10 per cent. Most firms believe the industry has reached a temporary plateau.

Diecasting sales still lag. Zinc shipments to continuous line galvanizers have improved. A cold spring has hurt lead sales to construction, battery, and tetraethyl lead people.

Kennecott Buys Smelter

American Smelting & Refining Co. has agreed to sell to Kennecott Copper Corp. its Garfield copper smelter near Salt Lake City, Utah, for $20 million. Kennecott will take over operations next January. The Garfield Works is said to be the largest copper smelter in the world, processing about 625,000 tons of concentrates yearly.

NONFERROUS PRICE RECORD

	Price May 7	Last Change	Previous Price	Apr. Avg	Mar. Avg	May, 1957 Avg
Aluminum	24.00	Apr. 1, 1958	26.00	24.000	26.000	25.000
Copper	23.75-25.00	Apr. 24, 1958	23.50-25.00	24.323	24.163	31.087
Lead	11.80	Apr. 1, 1958	12.80	11.800	12.800	15.185
Magnesium	35.25	Aug. 13, 1956	33.75	35.250	35.250	35.250
Nickel	74.00	Dec. 6, 1956	64.50	74.000	74.000	74.000
Tin	94.50	May 7, 1958	94.125	93.021	93.425	98.341
Zinc	10.00	July 1, 1957	10.50	10.000	10.000	13.500

Quotations in cents per pound based on: COPPER, mean of primary and secondary, deld. Conn. Valley; LEAD, common grade, deld. St. Louis; ZINC, prime western, E. St. Louis; TIN, Straits, deld. New York; NICKEL, electrolytic cathodes, 99.9%, base size at refinery, unpacked; ALUMINUM, primary pig, 99.5+%, f.o.b. shipping point; MAGNESIUM, pig, 99.8%, Velasco, Tex.

For 1/3 cost—step up to new-hammer performance with ERIE FOUNDRY REBUILDING SERVICE

Erie Foundry Rebuilding Service will disassemble and inspect your hammer, re-machine worn surfaces, true bearings, replace broken parts. Then we re-assemble and test your hammer before returning it. It will operate like a new machine

You can trust Erie Foundry Factory Rebuilding Service , over 60 years of leadership in building forging hammers stands behind our revitalizing work.

Regardless of make, and regardless of condition, send your tired, worn forging hammer "home" to Erie Please write.

ERIE

Greatest name in forging hammers since 1895

ERIE FOUNDRY CO., ERIE 2, PA.

Nonferrous Metals

Cents per pound, carlots except as otherwise noted.

PRIMARY METALS AND ALLOYS

Aluminum: 99.5%, pigs, 24.00; ingots, 26.10, 10,000 lb or more, f.o.b. shipping point. Freight allowed on 500 lb or more.

Aluminum Alloy: No. 13, 27.90; No. 43, 27.70; No. 195, 28.70; No. 214, 29.50; No. 356, 27.90, 30-lb ingots.

Antimony: R.M.M. brand, 99.5%, 29.00; Lone Star brand, 29.50, f.o.b. Laredo, Tex., in bulk. Foreign brands, 99.5%, 23.50-24.50, New York, duty paid, 10,000 lb or more.

Beryllium: 97% lump or beads, $71.50 per lb, f.o.b. Cleveland or Reading, Pa.

Beryllium Aluminum: 5% Be, $74.75 per lb of contained Be, with balance as Al at market price, f.o.b. shipping point.

Beryllium Copper: 3.75-4.25% Be, $43 per lb of contained Be, with balance as Cu at market price on shipment date, f.o.b. shipping point.

Bismuth: $2.25 per ton, ton lots.

Cadmium: Sticks and bars, $1.55 per lb deld.

Cobalt: 97-99%, $2.00 per lb for 550-lb keg; $2.02 per lb for 100 lb case; $2.07 per lb under 100 lb.

Columbium: Powder, $55-90 per lb, nom.

Copper: Electrolytic, 25.00 deld.; custom smelters, 23.75; lake, 25.00 deld.; fire refined, 24.75 deld.

Germanium: First reduction, $179.17-197.31 per lb; intristic grade, $197.31-220 per lb, depending on quantity.

Gold: U. S. Treasury, $35 per oz.

Indium: 99.9%, $2.25 per troy oz.

Iridium: $70-90 nom. per troy oz.

Lead: Common, 11.80; chemical, 11.90; corroding, 11.90, St. Louis, New York basis, add 0.20.

Lithium: 98 + %, 50-100 lb, cups or ingots, $12; rod, $15; shot or wire, $16. 100-500 lb, cups or ingots, $10.50; rod, $14; shot or wire $15, f.o.b. Minneapolis.

Magnesium: Pig, 35.25; ingot, 36.00 f.o.b. Velasco, Tex.; 12 in. thick, 59.00 f.o.b. Madison, Ill.

Magnesium Alloys: AZ91A (diecasting), 40.75 deld.; AZ63A, AZ92A, AZ91C (sand casting), 40.75, f.o.b. Velasco, Tex.

Mercury: Open market, spot, New York, $230-233 per 76-lb flask.

Molybdenum: Unalloyed, turned extrusions, 3.75-5.75 in. round, $9.60 per lb in lots of 2500 lb or more, f.o.b. Detroit.

Nickel: Electrolytic cathodes, sheets (4 x 4 in. and larger), unpacked, 74.00; 10-lb pigs, unpacked, 78.25; "XX" nickel shot, 779.50; "F" nickel shot for addition to cast iron, 74.50; "F" nickel, 5 lb ingots in kegs for addition to cast iron, 75.50. Prices f.o.b. Port Colborne, Ont., including import duty, New York basis, add 1.01. Nickel oxide sinter, 71.25 per lb of nickel content before 1 cent freight allowance, f.ob. Copper Cliff, Ont.

Osmium: $70-100 per troy oz nom.

Palladium: $19-21 per troy oz.

Platinum: $65-75 per troy oz from refineries.

Radium: $16-21.50 per mg radium content, depending on quantity.

Rhodium: $118-125 per troy oz.

Ruthenium: $45-55 per troy oz.

Selenium: $7.00 per lb, commercial grade.

Silver: Open market 88.625 per troy oz.

Sodium: 16.50, c.l.; 17.00 l.c.l.

Tantalum: Rod, $60 per lb; sheet, $55 per lb.

Tellurium: $1.65-1.85 per lb.

Thallium: $7.50 per lb.

Tin: Straits, N. Y., spot and prompt, 94.50.

Titanium: Sponge, 99.3 + %, grade A-1 ductile (0.3% Fe max.), $2.05; grade A-2 (0.5% Fe max.), $1.85 per lb.

Tungsten: Powder, 98.8%, carbon reduced, 1000-lb lots, $3.15 per lb nom., f.o.b. shipping point; less than 1000 lb, add 15.00; 99 + % hydrogen reduced, $3.85.

Zinc: Prime Western, 10.00; brass special, 10.25; intermediate, 10.50, East St. Louis, freight allowed over 0.50 per lb, New York basis, add 0.50. High grade, 11.00; special high grade, 11.25 deld. Diecasting alloy ingot No. 3, 13.75; No. 2, 14.75; No. 5, 14.25 deld.

Zirconium: Sponge, commercial grade, $5-10 per lb.

(Note: Chromium, manganese, and silicon metals are listed in ferroalloy section.)

SECONDARY METALS AND ALLOYS

Aluminum Ingot: Piston alloys, 24.00-24.50; No. 12 foundry alloy (No. 2 grade), 21.25-21.50; 5% silicon alloy, 0.60 Cu max., 24.00-24.25; 13 alloy, 0.60 Cu max., 24.00-24.25; 195 alloy, 24.25-25.50; 108 alloy, 21.75. Steel deoxidizing grades, notch bars, granulated or shot: Grade 1, 22.75; grade 2, 21.25; grade 3, 20.00; grade 4, 17.25.

Brass Ingot: Red brass, No. 115, 25.25; tin bronze, No. 225, 34.00, No. 245, 28.75; high-leaded tin bronze, No. 305, 29.25, No. 1 yellow, No. 405, 29.75; manganese bronze, No. 421, 23.00.

Magnesium Alloy Ingot: AZ63A, 37.50; AZ91B, 37.50; AZ91C, 41.25; AZ92A, 37.50.

NONFERROUS PRODUCTS

BERYLLIUM COPPER

(Base prices per lb, plus mill extras, 2000 to 5000 lb; nom. 1.9% Be alloy.) Strip, $1.80, f.o.b. Temple, Pa., or Reading, Pa.; rod, bar, wire, $1.78, f.o.b. Temple, Pa.

COPPER WIRE

Bare, soft, f.o.b. eastern mills, 30,000-lb lots, 30.355; l.c.l., 30.98. Weatherproof, 30,000-lb lots, 32.53; l.c.l., 33.28. Magnet wire deld., 38.43, before quantity discounts.

LEAD

(Prices to jobbers, f.o.b. Buffalo, Cleveland, Pittsburgh.) Sheets, full rolls, 140 sq ft or more, $17.50 per cwt; pipe, full coils, $17.50 per cwt; traps and bends, list prices plus 30%.

TITANIUM

(Prices per lb, 10,000 lb and over, f.o.b. mill.) Sheets and strip, $8.50-15.95; sheared mill plate, $6.00-9.50; wire, $6.50-11.00; forging billets, $4.10-4.35; hot-rolled and forged bars, $5.25-6.35.

ZINC

(Prices per lb, c.l., f.o.b. mill.) Sheets, $24.00; plate, $12.50-19.20; H.R. strip, $12.50-22.90; $11.00-17.40.

ZIRCONIUM

C.R. strip, $15.90-31.25; forged or H.R. bars, ribbon zinc in coils, 20.50; plates, 19.00.

NICKEL, MONEL, INCONEL

	"A" Nickel	Monel	Inconel
Sheets, C.R.	126	106	128
Strips, C.R.	124	108	138
Plate, H.R.	120	105	121
Rod, Shapes, H.R.	107	89	109
Seamless Tubes	157	129	200

ALUMINUM

Sheets: 1100, 3003, and 5005 mill finish (30,000 lb base; freight allowed).

Thickness Range, Inches	Flat Sheet	Coiled Sheet
0.249-0.136	41.10-45.60	.....
0.135-0.096	41.60-46.70	.....
0.125-0.096	.....	38.50-39.10
0.095-0.077	42.30-48.50	38.60-39.30
0.076-0.061	42.90-50.80	38.80-40.00
0.060-0.048	43.60-53.10	39.40-41.10
0.047-0.038	44.20-55.90	39.90-32.50
0.037-0.030	44.60-60.90	40.30-44.30
0.029-0.024	45.20-52.70	40.60-45.00
0.023-0.019	46.20-56.10	41.70-43.40
0.018-0.017	47.00-53.40	42.30-44.00
0.016-0.015	47.90-54.30	43.10-44.80
0.014	48.90	44.10-45.80
0.013-0.012	50.10	44.80
0.011	51.10	46.00
0.010-0.0095	52.60	47.40
0.009-0.0085	53.90	48.90
0.008-0.0075	55.50	50.10
0.007	57.00	51.60
0.006	58.60	53.00

ALUMINUM (continued)

Plates and Circles: Thickness 0.250-3 in., 24-60 in. width or diam., 72-240 in. lengths.

Alloy	Plate Base	Circle Base
1100-F, 3003-F	41.70	46.50
5050-F	42.80	47.60
3004-F	43.80	49.50
5052-F	44.40	50.20
6061-T6	44.90	51.00
2024-T4	48.60	55.40
7075-T6*	56.40	64.00

*24-48 in. width or diam., 72-180 in. lengths.

Screw Machine Stock: 30,000 lb base.

Diam.(in.) or across flats	Round 2011-T3	Round 2017-T4	Hexagonal 2011-T3	Hexagonal 2017-T4
Drawn				
0.125	76.20	73.20	....	....
0.156	64.20	61.40	....	....
0.172	....	61.40	....	....
0.188	64.20	61.40	....	79.60
0.203	64.20	61.40	....	....
0.219-0.234	61.00	59.50	....	....
0.250	61.00	59.50	88.40	75.90
0.266-0.281	61.00	59.50	....	....
0.313	61.00	59.50	81.40	72.20
0.344	60.50	....	81.40	....
Cold-Finished				
0.375-0.547	60.50	59.30	72.80	67.80
0.563-0.688	60.50	59.30	69.10	63.50
0.719	....	57.70	....	....
0.750-1.000	59.00	57.70	62.90	59.70
1.063	59.00	57.70	....	57.60
1.250-1.500	56.60	55.40	60.80	57.60
Rolled				
1.563	55.00	53.70	....	....
1.625-2.000	54.30	52.90	59.60	55.50
2.063	....	51.40	....	....
2.125-2.500	52.80	51.40	....	55.50
2.500-3.000	51.20	49.70	....	55.50
3.250-3.375	....	49.70	....	....

Forging Stock: Round, Class 1, random lengths, diam. 0.688-8 in., "F" temper: 2014, 41.50-54.30; 6061, 40.90-54.30; 7075, 42.90-56.30; 7079, 43.40-56.80.

Pipe: ASA schedule 40, alloy 6063-T6, standard lengths, plain ends, 90,000-lb base, per 100 ft.

Nom. Pipe Size (in.)		Nom. Pipe Size (in.)	
¾	$18.60	2	$ 57.40
1	29.35	4	157.60
1¼	39.75	6	282.95
1½	47.50	8	425.80

Extruded Solid Shapes:

Factor	Alloy 6063-T5	Alloy 6062-T6
9-11	45.40-47.00	58.60-62.80
12-14	45.70-47.20	59.30-63.80
15-17	45.90-47.90	60.50-65.50
18-20	46.50-48.30	62.50-68.10

MAGNESIUM

Sheet and Plate: AZ31B standard grade, 0.32 in., 103.10; .081 in., 77.90; .125 in., 70.40; .188 in., 69.00; .250-2.0 in., 67.90. AZ31B spec. grade, .032 in., 171.30; .081 in., 108.70; .125 in., 98.10; .188 in., 95.70; .250-2.00 in., 93.30. Tread plate, 60-192 in. lengths, 24-72 in. widths; .125 in., 74.90; .188 in., 71.70-72.70; .25-.75 in., 70.60-71.60. Tooling plate, .25-3.0 in., 73.00.

Extruded Solid Shapes:

Factor	Com. Grade (AZ31C)	Spec. Grade (AZ31B)
6-8	69.60-72.40	84.60-87.40
12-14	70.70-73.00	85.70-88.00
24-26	75.60-76.30	90.60-91.30
36-38	89.20-90.30	104.20-105.30

NONFERROUS SCRAP

DEALER'S BUYING PRICES

(Cents per pound, New York, in ton lots.)

Aluminum: 1100 clippings, 12.00-12.50; old sheets, 9.00-9.50; borings and turnings, 5.00-

BRASS MILL PRICES

	MILL PRODUCTS a				SCRAP ALLOWANCES f		
	Sheet, Strip, Plate	Rod	Wire	Seamless Tubes	Clean Heavy	Rod Ends	Clean Turnings
Copper	48.13b	45.36c	.....	48.32	21.000	21.000	20.250
Yellow Brass	42.69	31.03d	43.23	45.60	16.125	15.875	14.500
Low Brass, 80%	44.90	44.84	45.44	47.71	17.875	17.625	17.125
Red Brass, 85%	45.67	45.61	46.21	48.48	18.625	18.375	17.875
Com. Bronze, 90%	46.98	46.92	47.52	49.54	19.250	19.000	18.500
Manganese Bronze	50.81	44.91	55.44	....	14.875	14.625	14.125
Muntz Metal	45.19	41.00	....	....	15.125	14.875	14.375
Naval Brass	47.07	41.38	54.13	50.48	14.875	14.625	14.125
Silicon Bronze	52.84	52.03	52.88	54.77	20.625	20.375	19.625
Nickel Silver, 10%	57.93	60.26	60.26	....	21.125	20.875	10.562
Phos. Bronze, A-5%	67.17	67.67	67.67	68.85	21.875	21.625	20.625

a. Cents per lb, f.o.b. mill; freight allowed on 500 lb or more. b. Hot-rolled. c. Cold-drawn. d. Free cutting. e. Prices in cents per lb for less than 20,000 lb, f.o.b. shipping point. On lots over 20,000 lb at one time, or any or all kinds of scrap, add 1 cent per lb.

5.50; crankcase, 9.00-9.50; industrial castings, 9.00-9.50.

Copper and Brass: No. 1 heavy copper and wire, 18.00-18.50; No. 2 heavy copper and wire, 16.00-16.50; light copper, 14.00-14.50; No. 1 composition red brass, 15.00-15.50; No. 1 composition turnings, 14.00-14.50; new brass clippings, 13.00-13.50; light brass, 8.50-9.00; heavy yellow brass, 10.50-11.00; new brass rod ends, 11.00-11.50; auto radiators, unsweated, 11.00-11.50; cocks and faucets, 12.50-13.00; brass pipe, 12.50-13.00.

Lead: Heavy, 7.50-8.00; battery plates, 2.75-3.00; linotype and stereotype, 9.75-10.25; electrotype, 9.00-9.50; mixed babbitt, 9.75-10.25.

Monel: Clippings, 28.00-29.00; old sheets, 25.00-26.00; turnings, 20.00-23.00; rods, 28.00-29.00.

Nickel: Sheets and clips, 42.00-45.00; rolled anodes, 42.00-45.00; turnings, 37.00-40.00; rod ends, 42.00-45.00.

Zinc: Old zinc, 3.00-3.25; new diecast scrap, 2.75-3.00; old diecast scrap, 1.50-1.75.

REFINERS' BUYING PRICES

(Cents per pound, carlots, delivered refinery)

Aluminum: 1100 clippings, 15.50-16.25; 3003 clippings, 15.50-16.25; 6151 clippings, 15.50-16.50; 5052 clippings, 15.00-15.75; 2014 clippings, 15.00-15.25; 2017 clippings, 15.00-15.25; 2024 clippings, 15.00-15.25; mixed clippings, 14.00-14.75; old sheets, 11.50-12.25; old cast, 11.50-12.25; clean old cable (free of steel), 14.50-15.25; borings and turnings, 12.00-13.00.

Beryllium Copper: Heavy scrap, 0.020-in. and heavier, not less than 1.5% Be, 51.00; light scrap, 46.00; turnings and borings, 31.00.

Copper and Brass: No. 1 heavy copper and wire, 20.00; No. 2 heavy copper and wire, 18.25; light copper, 16.00; refinery brass (60% copper) per dry copper content, 17.75.

INGOTMAKERS' BUYING PRICES

Copper and Brass: No. 1 heavy copper and wire, 20.00; No. 2 heavy copper and wire, 18.25; light copper, 16.00; No. 1 composition borings, 17.50; No. 1 composition solids, 18.00; heavy yellow brass solids, 12.50; yellow brass turnings, 11.50; radiators, 14.00.

PLATING MATERIALS

(F.o.b. shipping point, freight allowed on quantities)

ANODES

Cadmium: Special or patented shapes, $1.70

Copper: Flat-rolled, 41.79; oval, 40.00, 5000-10,000 lb; electrodeposited, 31.25, 2000-5000 lb lots; cast, 36.25, 5000-10,000 lb quantities.

Nickel: Depolarized, less than 100 lb, 114.25; 100-499 lb, 112.00; 500-4999 lb, 107.50; 5000-29,999 lb, 105.25; 30,000 lb, 103.00. Carbonized, deduct 3 cents a lb.

Tin: Bar or slab, less than 200 lb, 112.50; 200-499 lb, 111.00; 500-999 lb, 110.50; 1000 lb or more, 110.00.

Zinc: Balls, 16.00; flat tops, 16.00; flats, 19.25; ovals, 18.50, ton lots.

CHEMICALS

Cadmium Oxide: $1.70 per lb in 100-lb drums.

Chromic Acid: 100 lb, 33.30; 500 lb, 32.80; 2000 lb, 32.15; 5000 lb, 31.80; 10,000 lb, 31.30; f.o.b. Detroit.

Copper Cyanide: 100-200 lb, 68.40; 300-900 lb, 66.40; 1000-19,900 lb, 64.40.

Copper Sulphate: 100-1900 lb, 13.70; 2000-5900 lb, 11.70; 6000-11,900 lb, 11.45; 12,000-22,900 lb, 11.20; 23,000 lb or more, 10.70.

Nickel Chloride: 100 lb, 48.50; 200 lb, 46.50; 300 lb, 45.50; 400-999 lb, 43.50; 10,000 lb or more, 40.50.

Nickel Sulphate: 5000-22,000 lb, 33.50; 23,000-35,900 lb, 33.00; 36,000 lb or more, 32.50.

Sodium Cyanide: 100 lb, 27.60; 200 lb, 25.90; 400 lb, 22.90; 1000 lb, 21.90; f.o.b. Detroit.

Sodium Stannate: Less than 100 lb, 75.20; 100-600 lb, 66.20; 700-1900 lb, 63.50; 2000-9900 lb, 61.60; 10,000 lb or more, 60.30.

Stannous Chloride (anhydrous): Less than 25 lb, 164.70; 25 lb, 129.70; 100 lb, 114.70; 400 lb, 112.20; 5200-19,600 lb, 100.00; 20,000 lb or more, 87.80.

Stannous Sulphate: Less than 50 lb, 127.50; 50 lb, 97.50; 100-1900 lb, 95.50; 2000 lb or more, 93.50.

Zinc Cyanide: 100-200 lb, 59.00; 300-900 lb, 57.00.

(Concluded from Page 139)

week reflecting market activity by Ford Motor Co. While dealers are hoping the upward move indicates new strength is developing, brokers say they suspect artificial stimulation. The outlook still is for prices to hold steady until the next auto lists come out.

Cincinnati—An area mill's purchase of the steel grades at the start of this month has given a shot in the arm to the scrap market here. The fact that prices paid were little changed from those quoted a month ago was a signal to scrapmen that the bottom of the slide has been reached. No. 1 heavy melting is up 50 cents to $29-$30.

St. Louis—Scrap market conditions and the immediate outlook are no better than they were a few weeks ago. Not much railroad scrap is being sold. Monthly offerings by the carriers are greatly reduced. In some instances, offerings are withdrawn when bid prices are unattractive. Rerolling rails last week dropped $6 a ton to $47.

Birmingham—Some foundries are buying limited amounts of cast scrap, but the steel mills are withholding new purchases until the orders they placed some time ago are filled. Brokers are expecting some electric furnaces to return to the market this week. Also, lower prices are anticipated, and these are thought likely to discourage a heavy movement into dealers' yards. Export buying continues light.

Houston—Significant demand for scrap is lacking. The leading mill has extended the delivery deadline on a limited April order to May 15. This mill offered to buy a small tonnage of short shoveling turnings at $3 a ton under the April price. Despite the absence of orders for heavy melting, brokers have cut the nominal price on this grade $3 a ton to conform with turnings.

Exports remain slow. Mexican demand is limited. One informed source reports some Mexican consumers are in financial trouble.

Scrap is still piling up in yards, but the low prices quoted are serving to hold down yard intake. Indicative of the depressed market here, successful bids averaged only $12.93 a ton on more than 10,000 tons of tanks at the Red River Arsenal, Texarkana.

Seattle—The larger scrap buyers established May prices at $2 under those prevailing in April for heavy melting and like steel grades. The general trend of the market continues downward. Yards are inactive, sales are few and receipts are light. Mill inventories are substantial. Export interest is absent. Japan is reported to have purchased a few small lots, but no active export business is expected before late fall.

San Francisco—Steel scrap prices are holding here, but the market undertone is weak, despite slight upward adjustments in quotations on the top grades in the southern California market area.

Los Angeles—A significant test of the higher prices recently effected in the scrap market here is lacking. Steelmaking activity has increased a little, but the mills are continuing on the sidelines so far as scrap purchases are concerned.

Structural Shapes . . .

Structural Shape Prices, Page 129

The spring construction season is providing mild improvement in the sluggish building steel market. Fabricating shops are estimating more tonnage, notably bridges in the East. This class of work, as well as other public construction, is expected to increase as the building season advances. Commercial and industrial inquiry continues sluggish.

Lump sum estimates are more frequent, with alternates on pre-

CLASSIFIED

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Help Wanted

"Help Wanted." Mill representatives or agents wanted for new steel tube mill. Several available territories. Write Box 84, Sheffield, Alabama.

CLASSIFIED RATES

All classifications other than "Positions Wanted" set solid, 50 words or less $15.00, each additional word .30, all capitals, 50 words or less $19.20, each additional word .38; all capitals leaded, 50 words or less $23.40, each additional word .47. "Positions Wanted" set solid, 25 words or less $3.60, each additional word .14, all capitals, 25 words or less $4.50, each additional word .18; all capital leaded, 25 words or less $5.40, each additional word .22. Keyed address takes seven words. Cash with order necessary on "Positions Wanted" advertisements. Replies forwarded without charge. Displayed classified rates on request. Address your copy and instructions to STEEL, Penton Building, Cleveland 13, Ohio.

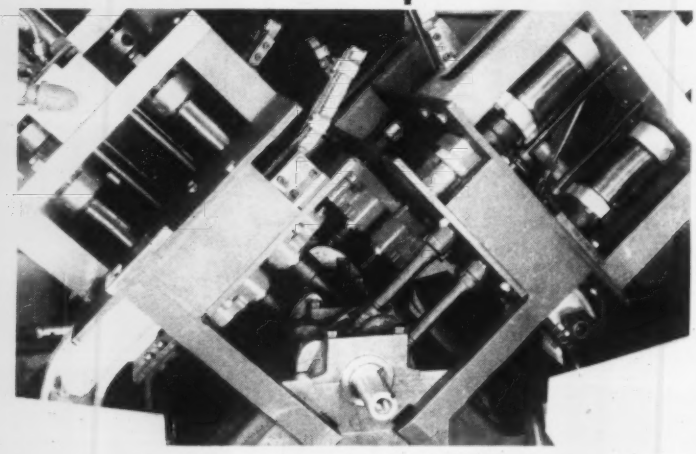
automatic assembly

machine feeds

and tightens nuts to prescribed torque

at the rate of

2240 nuts per hour



Here is the working head of the machine capable of feeding and tightening 2240 connecting rod nuts per hour!

The heart of this machine is the Ingersoll-Rand air-powered nut runner with fool-proof Ingersoll-Rand "run-to-stall" torque control.

Ingersoll-Rand has pioneered in the field of assembly machines for running nuts and screws. There is almost no limit to the bolt or screw pattern for which a machine can be developed. Savings in time and costs result in unusually fast pay-out.

If your assembly involves repetitive fastening with bolts, nuts, or screws, it will pay you to consult your Ingersoll-Rand AIRengineer. Chances are he can make recommendations that will materially cut your costs. Ingersoll-Rand, 11 Broadway, New York 4, N.Y.

8-757

Ingersoll-Rand

Tools plus AIRengineering increase output per man

stressed concrete spans cutting into structural tonnage. Shops are drawing on inventory, but an increase in structural mill orders is extending deliveries three to four weeks.

A Montreal, Canada, shop is low bidder on the approaches (6550 tons) for the international suspension bridge, Ogdensburg, N. Y.-Greenville, Ont. Its bid was substantially under engineering estimates.

Reinforcing Bars . . .

Reinforcing Bar Prices, Page 129

Rising highway and building construction activity is being reflected in a steady expansion of reinforcing steel requirements. Building steel and tin plate are the brightest spots in the steel market.

One small eastern producer of bars is operating close to capacity. Other makers in the East and Midwest are operating at comfortable levels. In the Pacific Northwest, bar mills are engaged below capacity. Their backlogs are down noticeably, although highway demand for reinforcing in the area is relatively active. Good weather is spurring demand in the San Francisco market.

Refractories . . .

Refractories Prices, Page 135

Niles Firebrick Div., Mexico Refractories Inc., Niles, Ohio, has advanced its vacation shutdown of three weeks from July to May, hoping that business will show improvement by July. The plant closed down May 3, notifying workers that they may take their vacations but that if business improves they will be called back before vacation time is up.

Rails, Cars . . .

Track Material Prices, Page 132

Relatively little steel is being bought by the railroads compared with volume a year ago. The rail mills are rolling far below average tonnages for this season, and steel required for boxcars and gondolas is in reduced demand.

At Buffalo, steelmen say the retrenchment and economy programs of the leading railroads are being reflected in a sharp drop in equipment buying. They don't expect much improvement until railroad carloadings improve.

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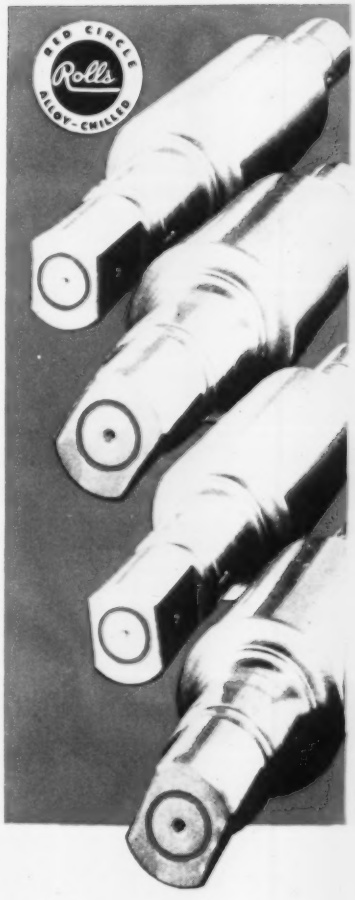

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for all purposes

The Red Circle on the Roll is the Hyde Park mark of Quality. Hyde Park makes rolls for every type mill.

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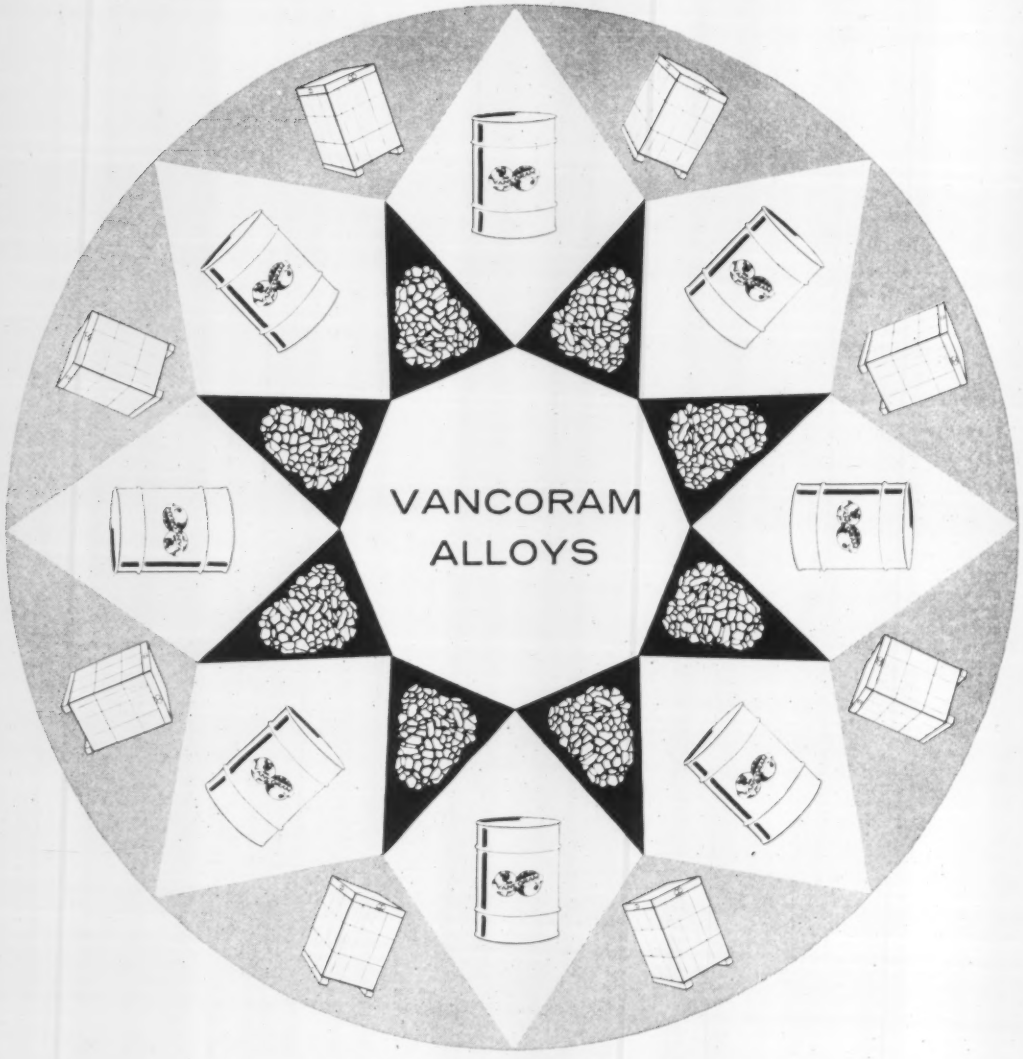

THERE ARE SCORES OF VANCORAM ALLOYS. They come in drums, pallet boxes, container cars, and in bulk. When quantity justifies, most VCA products are available in barge shipments. But no matter which ones you use . . . or the form in which you use them . . . they always contain two basic and unvarying ingredients:

Uniformity, and a high level of *quality* you can count on. *We know this because* we control the quality from mine to finished product. We apply over fifty years of alloy-making experience to the task of delivering to you the products that will do your job best, at lowest cost. Furthermore, we back every Vancoram product with a brand of *service* that matches the high quality of that product.

Vancoram — the first name in alloys, the last word in quality! Next time you need alloys, or help in solving ferro alloy problems, be sure to call your nearest VCA Office or distributor. Remember: they are there to serve you! Vanadium Corporation of America, 420 Lexington Avenue, New York 17, N. Y.

Vancoram Products for the Iron Foundry are also distributed by:
PACIFIC METALS CO., LTD. • STEEL SALES CORPORATION
J. M. TULL METAL & SUPPLY CO., INC.
WHITEHEAD METAL PRODUCTS COMPANY, INC.
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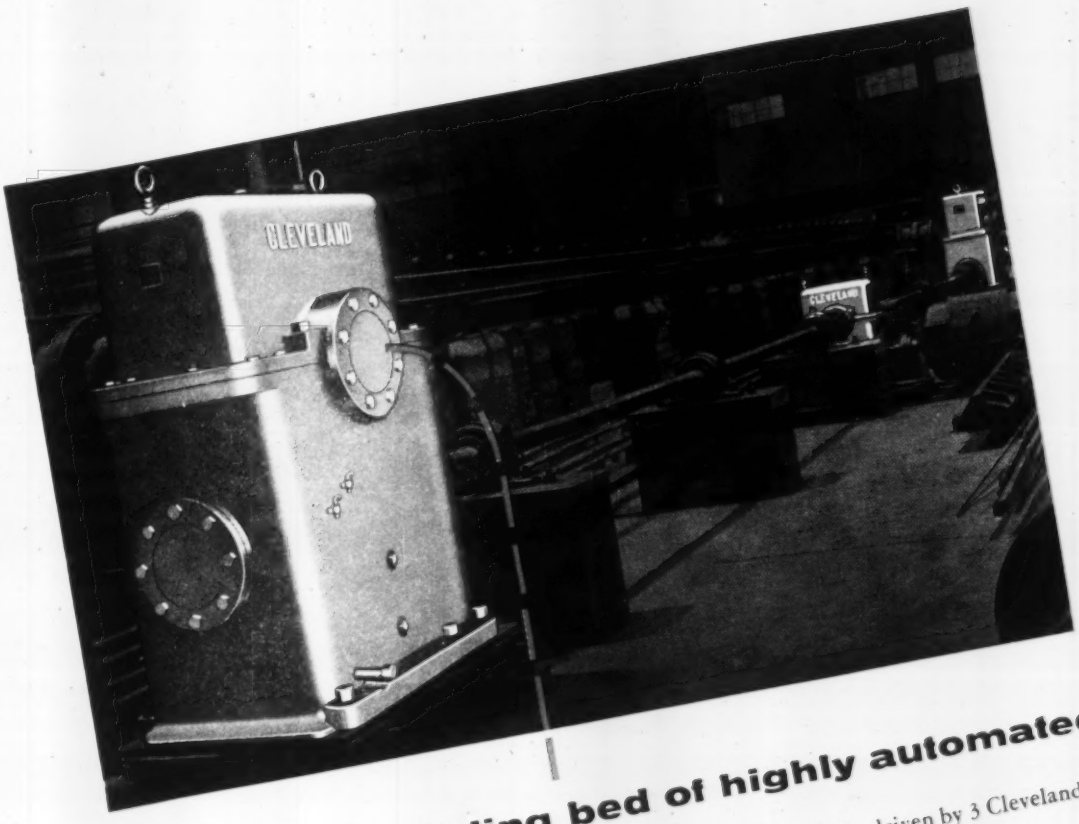


Clevelands drive cooling bed of highly automated Canadian tube mill

Here is the cooling bed—driven by 3 Cleveland speed reducers—of the world's first completely automated seamless tube mill. It was built by Mannesmann-Meer Engineering & Construction Co., Inc., Easton, Pa., and installed at the Sault Ste. Marie plant of Mannesmann Tube Company.

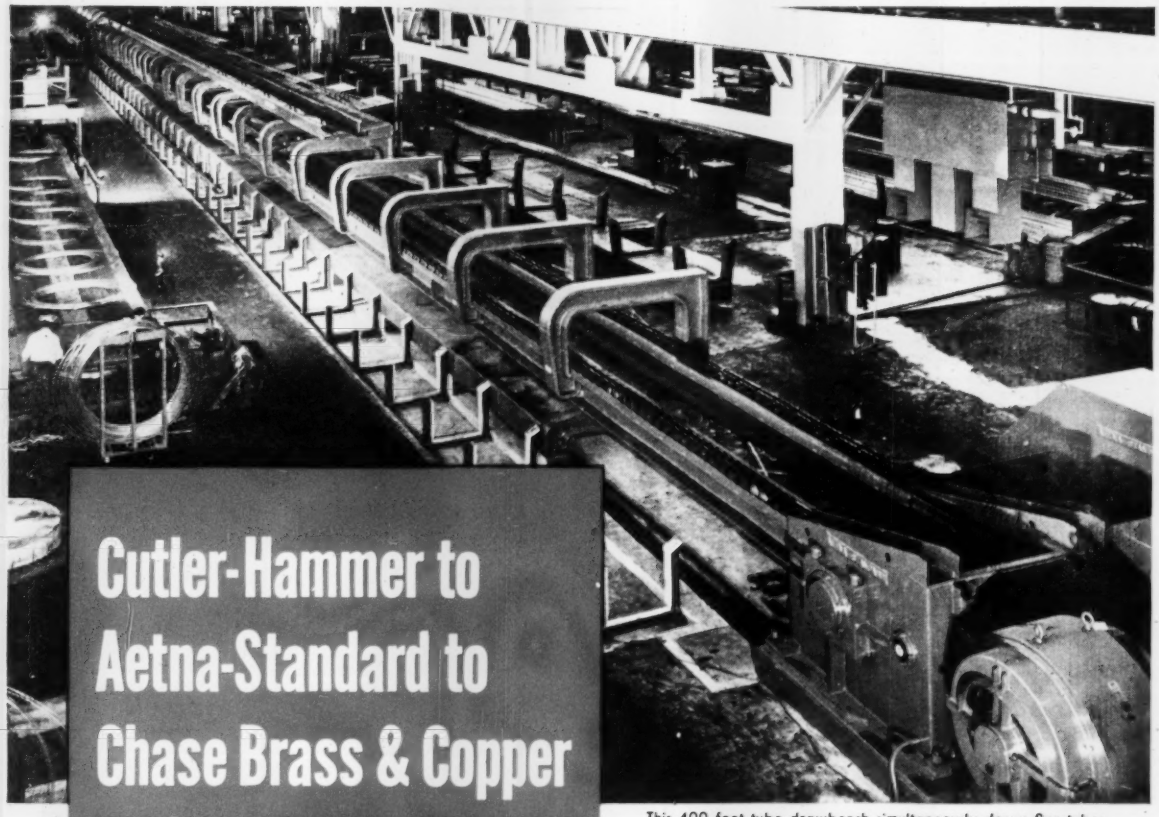
Practically everything in the entire plant is automatic—handling of materials from stage to stage, as well as individual operations.

You'll find Clevelands in nearly every steel plant in America—wherever dependable, heavy duty drives are demanded—many of them in continuous service upward of 35 years.

Write for new Bulletin 145 which shows the many types available in the Cleveland line. The Cleveland Worm and Gear Company, 3270 East 80th Street, Cleveland 4, Ohio.

CLEVELAND
Worm Gear
Speed Reducers

Affiliate: The Farval Corporation, Centralized Systems of Lubrication.
In Canada: Peacock Brothers Limited.



Cutler-Hammer to Aetna-Standard to Chase Brass & Copper

This 400 foot tube drawbench simultaneously draws five tubes to a maximum length of 210 feet. Cutler-Hammer Control varies the drawing speed between 110 and 330 feet per minute.

It takes teamwork to win, and it takes teamwork to develop new and better machines for industry. This mammoth 400 foot Tube Drawbench was constructed by the Aetna-Standard Engineering Company, equipped with Cutler-Hammer Motor Control and installed at the Cleveland Mill of the Chase Brass & Copper Company. Engineers from all three companies worked together to produce this amazing machine, the longest drawbench in the copper and brass industries. Here again is another example where Cutler-Hammer Control was specified because of its reputation for dependability and the design leadership Cutler-Hammer has displayed during the past 65 years. You, too, will find it pays to insist upon Cutler-Hammer for the practical solution to all your control problems involving mill machines and processes.

CUTLER-HAMMER, Inc., 1211 St. Paul Avenue, Milwaukee 1, Wisconsin. *Associate:* Canadian Cutler-Hammer, Ltd., Toronto.

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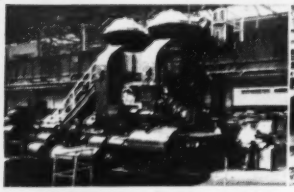
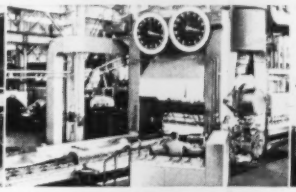
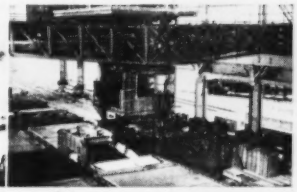


Cutler-Hammer Control on a rebuilt sheet temper pass mill.



Cutler-Hammer Control on a 44" taper mill.

Cutler-Hammer Control on a giant ore bridge.



Cutler-Hammer Control on a 10 ton soaking pit crane.

LOOK TO CUTLER-HAMMER MILL EXPERIENCE . . . AS BROAD AS IT IS LONG